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United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
University of Georgia
College of Agriculture
Agricultural
Experiment Stations

Soil Survey of Washington and Wilkinson Counties Georgia

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HOW TO USE

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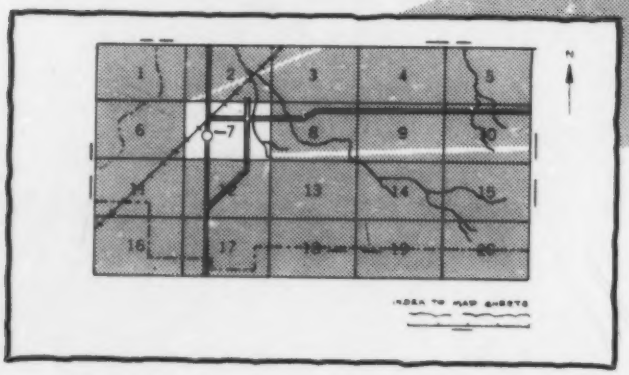

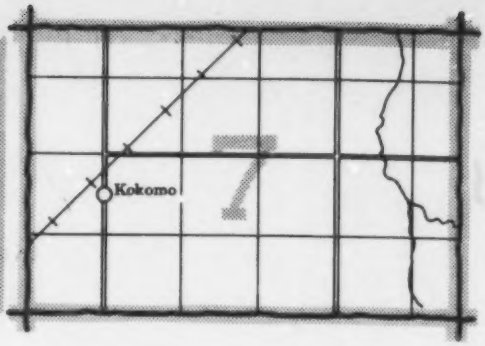

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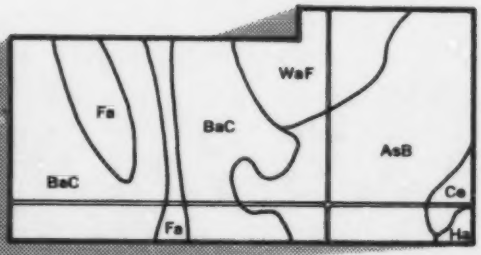

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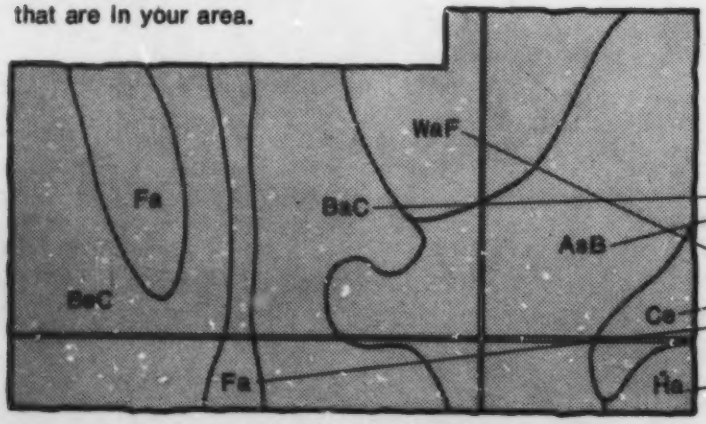

Symbols

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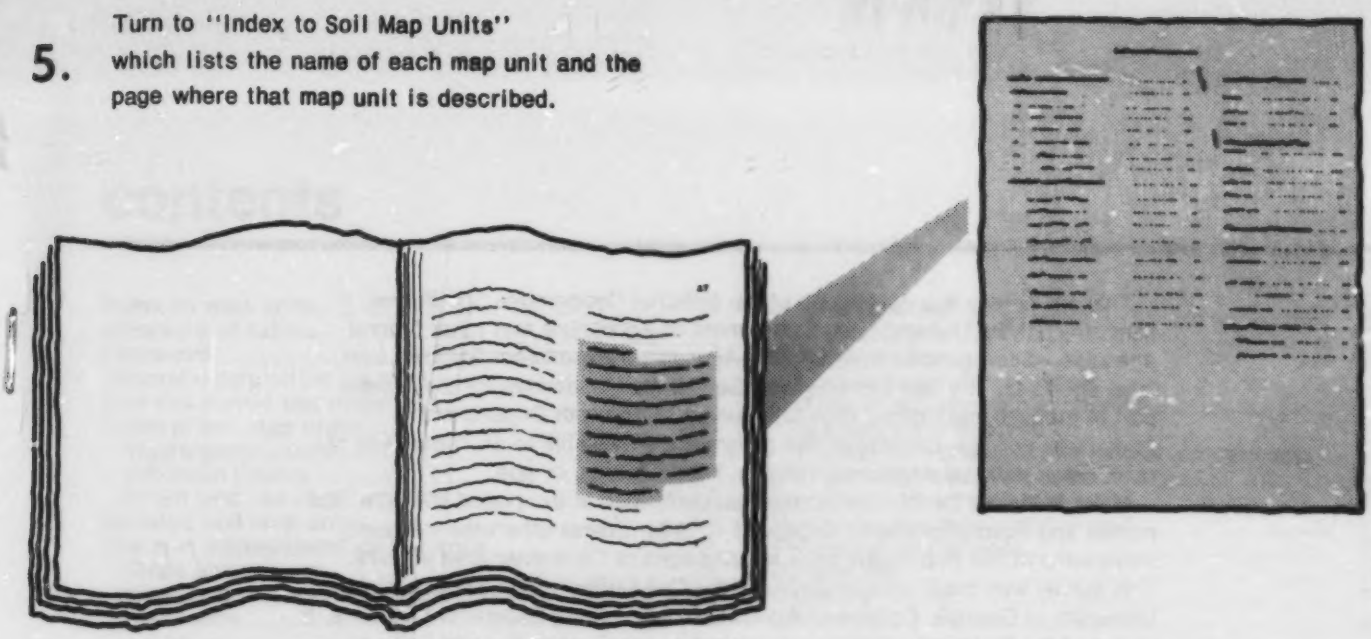
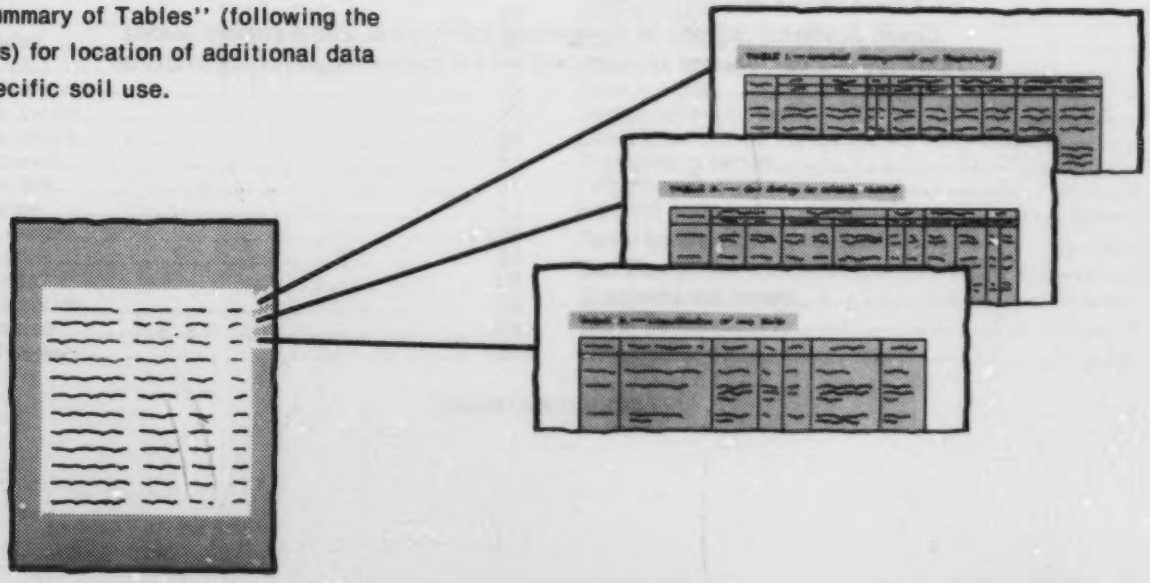
THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1968-78. Soil names and descriptions were approved in 1979. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1979. This survey was made cooperatively by the Soil Conservation Service and the University of Georgia, College of Agriculture, Agricultural Experiment Stations. It is part of the technical assistance furnished to the Central Georgia Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Soybeans planted on Orangeburg loamy sand, 2 to 5 percent slopes. No-tillage is a part of good management for the commonly grown row crops on this soil.

contents

Index to map units iv
Summary of tables v
Foreword vii
General nature of the counties 1
How this survey was made 3
General soil map units 5
Washington County 5
Wilkinson County 11
Broad land use considerations 16
Detailed soil map units 17
Use and management of the soils 41
Crops and pasture 41
Woodland management and productivity 44
Recreation 45
Wildlife habitat 46
Engineering 47
Soil properties 53
Engineering index properties 53
Physical and chemical properties 54
Soil and water features 54
Physical and chemical analyses of selected soils 55
Engineering index test data 56
Classification of the soils 57
Soil series and their morphology 57
Formation of the soils 72
References 75
Glossary 77
Tables 83

soil series

Ailey series 57
Ardilla series 58
Bibb 59
Chastain series 59
Chewacla series 59
Congaree series 60
Cowarts series 61
Dothan series 61
Eustis series 62
Faceville series 62
Fuquay series 63
Grady series 63
Greenville series 64
Kinston series 64
Lakeland series 65
Lucy series 65
Marlboro series 65
Mascotte series 66
Nankin series 66
Ochlockonee series 67
Ocilla series 67
Orangeburg series 68
Pelham series 68
Persanti series 69
Rains series 70
Red Bay series 70
Susquehanna series 71
Tifton series 71
Vaucluse series 72

Issued October 1985

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index to map units

AeC—Ailey loamy sand, 2 to 8 percent slopes 17
Ar—Ardilla loamy sand 18
Bk—Bibb and Kinston sandy loams 19
Cc—Chewacla-Chastain association 20
Cg—Chewacla-Congaree association 20
CnB—Cowarts-Nankin complex, 2 to 5 percent slopes 21
CnC2—Cowarts-Nankin complex, 5 to 12 percent slopes, eroded 21
DoA—Dothan loamy sand, 0 to 2 percent slopes 22
DoB—Dothan loamy sand, 2 to 5 percent slopes 22
DoC—Dothan loamy sand, 5 to 8 percent slopes 23
EuB—Eustis loamy sand, 2 to 6 percent slopes 23
EuD—Eustis loamy sand, 6 to 12 percent slopes 24
FaB—Faceville sandy loam, 1 to 5 percent slopes 24
FaC2—Faceville sandy loam, 5 to 10 percent slopes, eroded 24
FsB—Fuquay loamy sand, 0 to 5 percent slopes 25
FsC—Fuquay loamy sand, 5 to 8 percent slopes 26
Gr—Grady loam 27
GsB—Greenville sandy loam, 1 to 5 percent slopes 27
GsC2—Greenville sandy loam, 5 to 10 percent slopes, eroded 27
LaB—Lakeland sand, 0 to 8 percent slopes 28
LaD—Lakeland sand, 8 to 12 percent slopes 28
LmB—Lucy loamy sand, 0 to 5 percent slopes 28
LmC—Lucy loamy sand, 5 to 8 percent slopes 29
MaB—Marlboro sandy loam, 2 to 5 percent slopes 29
Mn—Mascotte sand 29
Oc—Ochlockonee sandy loam 30
Od—Ocilla loamy sand 31
OrA—Orangeburg loamy sand, 0 to 2 percent slopes 31
OrB—Orangeburg loamy sand, 2 to 5 percent slopes 31
OrE—Orangeburg loamy sand, 12 to 17 percent slopes 32
OsC2—Orangeburg sandy loam, 5 to 8 percent slopes, eroded 32
OsD2—Orangeburg sandy loam, 8 to 12 percent slopes, eroded 33
Pe—Pelham loamy sand 33
Ps—Persanti fine sandy loam 33
Ra—Rains sandy loam 34
ReB—Red Bay loamy sand, 2 to 5 percent slopes 34
ReC2—Red Bay sandy loam, 5 to 8 percent slopes, eroded 34
SuB—Susquehanna sandy loam, 2 to 5 percent slopes 35
SuD—Susquehanna sandy loam, 5 to 12 percent slopes 35
TfB—Tifton loamy sand, 2 to 5 percent slopes 36
TsC2—Tifton sandy loam, 5 to 8 percent slopes, eroded 36
Up—Udorthents-Pits complex 36
VaC—Vaucluse and Ailey loamy sands, 2 to 8 percent slopes 37
VaD—Vaucluse and Ailey loamy sands, 8 to 17 percent slopes 38

summary of tables

Temperature and precipitation (table 1) 84

Freeze dates in spring and fall (table 2) 85
Probability. Temperature.

Growing season (table 3) 85
Probability. Daily minimum temperature.

Acreage and proportionate extent of the soils (table 4) 86
Washington County. Wilkinson County. Total—Area, Extent.

Yields per acre of crops and pasture (table 5) 87
Corn. Soybeans. Cotton lint. Wheat. Improved bermudagrass. Bahiagrass.

Capability classes and subclasses (table 6) 89
Total acreage. Major management concerns.

Woodland management and productivity (table 7) 90
Ordination symbol. Management concerns. Potential productivity. Trees to plant.

Recreational development (table 8) 93
Camp areas. Picnic areas. Playgrounds. Paths and trails.

Wildlife habitat (table 9) 96
Potential for habitat elements. Potential as habitat for—Openland wildlife, Woodland wildlife, Wetland wildlife.

Building site development (table 10) 99
Shallow excavations. Dwellings without basements. Dwellings with basements. Small commercial buildings. Local roads and streets.

Sanitary facilities (table 11) 102
Septic tank absorption fields. Sewage lagoon areas. Trench sanitary landfill. Area sanitary landfill. Daily cover for landfill.

Construction materials (table 12) 105
Roadfill. Sand. Gravel. Topsoil.

Water management (table 13) 107
Limitations for—Pond reservoir areas; Embankments, dikes, and levees. Features affecting—Drainage, Irrigation, Terraces and diversions, Grassed waterways.

Engineering index properties (table 14) 110
Depth. USDA texture. Classification—Unified, AASHTO. Fragments greater than 3 inches. Percentage passing sieve—4, 10, 40, 200. Liquid limit. Plasticity index.

Physical and chemical properties of the soils (table 15) 115
Depth. Permeability. Available water capacity. Reaction. Shrink-swell potential. Erosion factors.
Soil and water features (table 16)..... 118
Hydrologic group. Flooding. High water table. Risk of corrosion.
Physical and chemical analyses of selected soils (table 17) 120
Total. Size class and particle diameter. Ratio. Water content. Reaction.
Engineering index test data (table 18) 121
Classification. Grain-size distribution. Liquid limit. Plasticity index. Moisture density. Percentage volume change.
Classification of the soils (table 19)..... 123
Family or higher taxonomic class.

foreword

This soil survey contains information that can be used in land-planning programs in Washington and Wilkinson Counties. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Dwight M. Treadway

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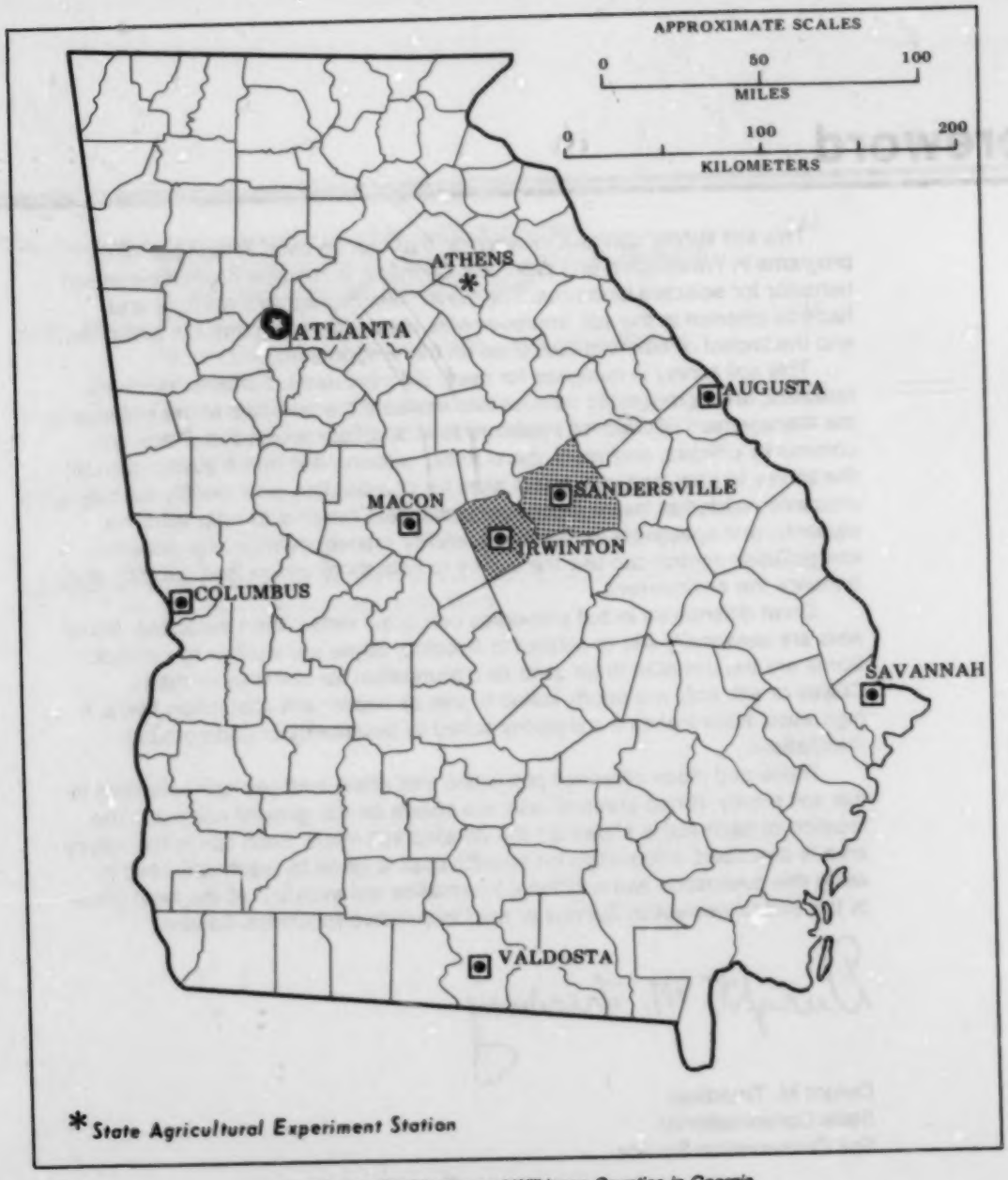
State Conservationist
Soil Conservation Service



Location of Washington and Wilkinson Counties in Georgia.

soil survey of Washington and Wilkinson Counties, Georgia

By Ernest H. Smith

Fieldwork by James O. Murphy, Edward E. Looper, Harold D. Kicklighter, William C. Player, and Ernest H. Smith, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with the University of Georgia, College of Agriculture, Agricultural Experiment Stations

WASHINGTON and WILKINSON COUNTIES are in the central part of Georgia. They cover an area of 1,131 square miles or 724,032 acres. Washington County has 431,040 acres and Wilkinson County has 292,992 acres. Sandersville is the county seat of Washington County, and Irwinton is the county seat of Wilkinson County.

Washington and Wilkinson Counties are in two major land resource areas. The northern part of the survey area is mainly in the Carolina and Georgia Sand Hills and is made up mostly of very gently sloping to moderately steep soils on uplands. The southern part is mainly in the Southern Coastal Plain and is made up of nearly level to gently sloping soils on uplands. Nearly level soils on flood plains are along the rivers and larger creeks. The flood plains are somewhat wider along the rivers than along the creeks. Most of the soils in the Sand Hills are well drained to excessively drained and have a predominantly sandy surface layer and a predominantly loamy subsoil or sandy underlying layer. Most of the soils in the Southern Coastal Plain are well drained and have a sandy or loamy surface layer and a predominantly loamy or clayey subsoil. Most of the soils on flood plains, on broad flats, and along drainageways are poorly drained or somewhat poorly drained. They have a loamy or sandy surface layer and predominantly loamy underlying layers.

Most of the soils on the upland ridgetops are essentially uneroded. However, the soils on hillsides commonly are eroded. The better drained, nearly level to gently sloping soils that have a loamy or clayey subsoil are well suited to farming and to many nonfarm uses.

The first soil survey of Washington County was published in 1916 (*5*). This survey updates the first survey and provides additional information. No previous soil survey has been published for Wilkinson County.

general nature of the counties

Kermit B. Sanders, district conservationist, Sandersville, Georgia; Carroll S. Chapman, district conservationist, Jeffersonville, Georgia; and Milton P. Minchew, Jr., soil conservation technician, Irwinton, Georgia assisted in preparing this section.

This section provides general information about Washington and Wilkinson Counties. It discusses settlement; physiography, relief, and drainage; farming; water supply; natural resources; industries, utilities, and transportation; and climate.

settlement

Washington County was established by an act of the General Assembly of Georgia in 1784. The land was given to patriots who defended Georgia during the Revolutionary War. The county was named in honor of General George Washington.

In 1950 the population of Washington County was 21,012; in 1970 it had decreased to 17,480. In 1950 the number of farms in Washington County was 2,250; in 1969 it was 544. The average farm size in 1950 was 164

acres; in 1969 the average size was 366 acres. In 1950, 86 percent of the soil was used for farming; in 1969, 46 percent was farmed. Estimates indicate that these trends will continue.

Wilkinson County was formed by an act of the General Assembly of Georgia in 1803. Additional acts over the next few years modified the county boundaries, and in 1809, Wilkinson County was established at its present size. The county was named in honor of Revolutionary War General James B. Wilkinson.

In 1950 the population of Wilkinson County was 9,781; in 1970 it had decreased to 9,393. In 1950 the number of farms in Wilkinson County was 845; in 1969 it was 252. The average farm size in 1950 was 215 acres; in 1969 the average size was 278 acres. In 1950, 62 percent of the soil was used for farming; in 1969, 24 percent was farmed. Estimates indicate that these trends will continue.

physiography, relief, and drainage

Washington and Wilkinson Counties are in the Southern Coastal Plain and in the Carolina and Georgia Sand Hills Major Land Resource Area. Elevation ranges from 175 feet near the Oconee River in the southeastern part of Washington County to 575 feet north of Georgia Highway 57 near the Jones County line in Wilkinson County.

The soils on uplands are mainly well drained. The southern part of the survey area consists mostly of broad, nearly level soils on ridgetops and very gently sloping and gently sloping soils on ridgetops and hillsides. The northern part of the survey area consists mainly of very gently sloping soils on ridgetops and moderately steep soils on hillsides. The landscape is dissected by numerous small drainageways. The slopes on ridgetops commonly are smooth and convex, and the slopes on hillsides commonly are irregular and convex.

The nearly level soils on flood plains are predominantly poorly drained. They are along the Oconee River, Ogeechee River, Little Ohoopee River, Buffalo Creek, Commissioner Creek, and Big Sandy Creek and their tributaries. In most of the survey area the flood plains are somewhat narrow, but along the Oconee River they are wide. The soils along the major streams and their tributaries are subject to frequent overflow during winter and early in spring. They drain off slowly and remain wet for long periods.

The major drainage system for both counties is made up of the Oconee River, Ogeechee River, Little Ohoopee River, and Williamson Swamp Creek and their tributaries. The Oconee River separates the two counties.

The Oconee River and its tributaries drain the southwestern part of Washington County and the eastern part of Wilkinson County. Important tributaries are Buffalo Creek, Gum Creek, and Key Creek in Washington County and Big Sandy Creek, Black Creek, and Commissioner Creek in Wilkinson County.

The Ogeechee River and its tributaries drain the eastern part of Washington County. Important tributaries are the Little Ogeechee River, Cowpen Creek, and Stephens Creek. The Little Ohoopee River and its tributaries drain the southeastern part of Washington County. Williamson Swamp Creek flows through Davisboro in Washington County and drains the northwestern and eastern part of the county. Each of the tributaries of the major streams has its own small tributaries that branch into the uplands and form a well defined trellis pattern.

farming

The soils in Washington and Wilkinson Counties have been used mainly for farming since they were settled. Most of the farm income is derived from cultivated crops, mainly corn, soybeans, peanuts, small grain, and cotton. A small acreage is planted every year in truck crops. Some of these crops are used for canning. Wilkinson County has fewer acres in cultivated crops than Washington County, but generally the same kinds of crops are grown in each county. In the last 30 years, the amount of land used for cotton production has decreased and the amount used for soybean and corn production has increased. The number of livestock, mainly hogs and beef cattle, has steadily increased. About 75 percent of the two counties is wooded. Forest products contribute significantly to the income of the counties.

Since about 1950, the number of farms in the survey area has decreased. The size of the average farm, however, has increased. Improved farming methods, such as conservation tillage, no-tillage, and irrigation have increased crop yields.

water supply

Washington and Wilkinson Counties have abundant ground water resources. Water for municipal, industrial, and farm uses is supplied by wells drilled into aquifers.

Most of the domestic wells in the counties have a diameter of 3 to 6 inches and are between 40 and 200 feet deep. These deep wells produce an adequate supply of water even during dry periods. Recently, several wells that are 8 to 12 inches in diameter and 250 to 750 feet deep have been used to supply water for irrigation.

In addition to the ground water resources, water can be obtained from many of the creeks, rivers, and springs that flow through the area. Many farm ponds provide water for domestic and recreation uses.

natural resources

Soil is the most important resource in Washington and Wilkinson Counties. Well managed soils produce abundant crops for market. The raising of livestock and

the production of trees are also of important economic value.

Washington and Wilkinson Counties are the leading producers of kaolin in Georgia. Kaolin, which underlies much of the survey area, is the main ingredient for coating the high quality paper used in some magazines and books. It is also used in the manufacture of rubber, linoleum, oilcloth, paint, fertilizers, insecticides, and many other products. Kaolin is at a shallower depth and is mined in greater quantities in the western part of Washington County and to the south of Gordon in Wilkinson County than in other parts of the survey area.

Industries, utilities, and transportation

The soils in Washington and Wilkinson Counties are used mainly for farming. Most farm products can be marketed locally. The kaolin industry is very large in the two counties and employs several hundred people.

Electric power and telephone service are available throughout both counties. Natural gas is supplied to the major towns and cities. Railroads, trucklines, and buses provide shipping and transportation facilities. Air service is available in Washington County. State highways and county roads are throughout the counties.

Climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Washington and Wilkinson Counties have long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short. Cold waves occur rarely and moderate in one or two days. Precipitation is fairly heavy throughout the year. Prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Sandersville, Georgia during the period 1965 to 1976. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 50 degrees F, and the average daily minimum temperature is 37 degrees. The lowest temperature on record, which occurred at Sandersville on January 30, 1966, is 2 degrees. In summer the average temperature is 79 degrees, and the average daily maximum temperature is 91 degrees. The highest recorded temperature, which occurred on July 13, 1966, is 103 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 26 inches, or 50 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 20 inches. The heaviest 1-day rainfall during the period of record was 5.06 inches at Sandersville on October 30, 1970. Thunderstorms occur on about 60 days each year, and most occur in summer.

Snowfall is rare. In 80 percent of the winters, there is no measurable snowfall. In 20 percent, the snowfall, usually of short duration, is more than 4 inches. The heaviest 1-day snowfall on record was more than 14 inches.

The average relative humidity in midafternoon is about 50 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 70 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the west-northwest. Average windspeed is highest, 10 miles per hour, in March.

Severe storms, including tornadoes, strike occasionally in or near the survey area. These storms are short and cause variable and spotted damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane which has moved inland causes extremely heavy rainfall for 1 to 3 days.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for

engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary widely in their suitability for major land uses. A soil is well suited if it has properties that are favorable. A soil is moderately suited if it has properties that require special planning and management to obtain satisfactory performance. A soil is poorly suited if it has properties that are unfavorable.

Washington County

poorly drained to well drained soils on flood plains

Two map units in Washington County are made up of nearly level, predominantly loamy, poorly drained to well drained soils on flood plains. Slopes range from 0 to 2 percent. The poorly drained soils commonly are in somewhat lower lying positions than the somewhat poorly drained to well drained soils. The poorly drained soils have a predominantly brownish surface layer and a gray, mottled subsoil or underlying layers. The somewhat poorly drained to well drained soils are brownish throughout, and the middle or lower layers are mottled.

1. Chewacla-Chastain-Congaree

Nearly level, poorly drained to well drained soils that have a loamy surface layer and a loamy or clayey subsoil or loamy underlying layers

This map unit is made up of nearly level soils on flood plains of the Oconee and Ogeechee Rivers and their tributaries. The soils in low lying positions commonly are poorly drained, and the soils in higher lying positions are better drained. These soils are generally flooded in winter and early in spring. Slopes are less than 2 percent.

This map unit makes up about 3 percent of the county. About 47 percent is Chewacla soils; 27 percent, Chastain soils; and 11 percent, Congaree soils. The rest is soils of minor extent.

The Chewacla soils have a loamy surface layer and a loamy subsoil. They are somewhat poorly drained. Typically, the surface layer is about 10 inches thick. It is brown loam in the upper 6 inches and dark brown silt loam in the lower 4 inches. The subsoil extends to a depth of 50 inches. The upper part is yellowish brown silt loam; the middle part is light yellowish brown sandy clay loam that has strong brown and light brownish gray mottles; the lower part is mottled, yellowish brown, light gray, and strong brown sandy clay loam. The underlying material is stratified, light gray and brownish yellow loamy sand and sandy loam to a depth of 65 inches or more.

The Chastain soils have a loamy surface layer and a clayey subsoil. They are poorly drained. Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 65 inches or more is gray clay that has strong brown mottles.

The Congaree soils have a loamy surface layer and loamy underlying layers. They are well drained or moderately well drained. Typically, the surface layer is reddish brown loam about 5 inches thick. The underlying material to a depth of 75 inches is mainly stratified, reddish brown loam, silty clay loam, and silt loam and has brown mottles.

Of minor extent are areas of Bibb and Kinston soils. They are poorly drained and are in small drainageways on the outer parts of the flood plain.

The soils in this map unit are wooded; however, the better drained areas could be used for cultivated crops or pasture if extensive flood control and drainage measures were installed and maintained. Most areas are

well suited to the production of trees. However, restricted use of equipment and the hazards of seedling mortality are management concerns in most places. Most areas of these soils are poorly suited to farming and to most urban and recreation uses unless they are drained. The hazards of flooding and wetness are the main concerns in use and management. These limitations can be overcome by extensive flood control and drainage measures.

2. Bibb-Kinston

Nearly level, poorly drained soils that have a loamy or sandy surface layer and loamy or sandy underlying layers

This map unit is made up of nearly level soils on flood plains of streams and smaller tributaries throughout most of Washington County. These soils are in low lying positions and the probability of being flooded is high late in winter and early in spring. Slopes are less than 2 percent.

This map unit makes up about 7 percent of the county. About 60 percent is Bibb soils, and 35 percent is Kinston soils. The rest is soils of minor extent.

The Bibb soils have mainly a loamy surface layer and sandy underlying layers. Typically, the surface layer is about 13 inches thick. It is dark grayish brown sandy loam in the upper part and dark gray loamy sand in the lower part. The underlying material extends to a depth of 65 inches or more. It is stratified, gray sandy loam and loamy sand and has yellowish brown mottles.

The Kinston soils are loamy throughout. Typically, the surface layer is sandy loam about 11 inches thick. It is dark gray in the upper part and gray in the lower part. The underlying material to a depth of 52 inches is gray sandy clay loam and clay loam and has brownish yellow mottles. Below this material is stratified, gray loamy sand and sand to a depth of 65 inches or more.

Of minor extent are areas of Ochlockonee and Pelham soils. The Ochlockonee soils are well drained and are commonly along the smaller tributaries that branch from the upper end of the flood plain. Pelham soils are associated on the landscape with the major soils.

The soils in this map unit are used mostly for woodland. Some small areas are used for pasture. Most areas are well suited to the production of trees. However, equipment limitations and seedling mortality are management concerns in most places. The soils in this map unit are poorly suited to farming and to urban uses. The hazards of flooding and wetness are the main concerns in use and management.

somewhat poorly drained soils on low lying uplands, and moderately well drained soils on stream terraces

One map unit in Washington County is made up of nearly level, somewhat poorly drained soils on low lying uplands and moderately well drained soils on stream terraces. Slopes range from 0 to 2 percent. The soils on low lying uplands have a sandy surface layer that is grayish and a loamy subsoil that is brownish and mottled. The soils on stream terraces have a loamy surface layer that is brownish and a clayey subsoil that is brown in the upper part and mottled in the lower part.

3. Ardilla-Persanti-Ocilla

Nearly level, somewhat poorly drained and moderately well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

This map unit is made up of nearly level soils on broad, low lying uplands and on stream terraces. The soils are mainly north of the Oconee River and adjacent to the Ogeechee River near Archer's Pond. Slopes range from 0 to 2 percent.

This map unit makes up about 2 percent of the county. About 39 percent is Ardilla soils; 36 percent, Persanti soils; and 10 percent, Ocilla soils. The rest is soils of minor extent.

The Ardilla soils have a sandy surface layer and a loamy subsoil. They are somewhat poorly drained. Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer is dark grayish brown sandy loam that extends to a depth of 10 inches. The subsoil is sandy clay loam to a depth of 65 inches or more. It is brittle below a depth of about 19 inches. The upper few inches of the subsoil is yellowish brown; the middle part is predominantly yellowish brown and has strong brown, light gray, and yellowish red mottles; the lower part is mottled yellowish brown, yellowish red, light gray, and strong brown.

The Persanti soils have a loamy surface layer and a clayey subsoil. They are moderately well drained. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is pale brown fine sandy loam that extends to a depth of 15 inches. The subsoil is clay to a depth of 65 inches or more. The upper part is light yellowish brown and has strong brown mottles; the middle part is mottled strong brown, yellowish red, red, and light gray; the lower part is light gray and has strong brown, yellowish red, and pale olive mottles.

The Ocilla soils have a thick sandy surface layer and a loamy subsoil. They are somewhat poorly drained. Typically, the surface layer is very dark gray loamy sand about 7 inches thick. The subsurface layer is loamy sand that extends to a depth of 26 inches. It is light brownish gray in the upper part and pale brown in the lower part. The subsoil is dominantly sandy clay loam to a depth of 65 inches or more. The upper part is brownish yellow and has light brownish gray mottles; the middle part is brownish yellow and has light gray and yellowish brown mottles; the lower part is mottled yellowish brown, yellowish red, and light gray.

Of minor extent are areas of Fuquay and Rains soils. Rains soils are poorly drained and are in slightly lower

lying depressions and on flats. Fuquay soils are well drained and are on somewhat higher lying areas.

The soils in this map unit are used mainly for woodland. Some small areas are used for cultivated crops and pasture. Most of the soils are only moderately suited to cultivated crops and pasture, but they are well suited to the production of trees. Equipment limitations and seedling mortality are management concerns in areas used for woodland. These soils are poorly suited to urban uses because of wetness. This limitation can be overcome only by drainage.

predominantly well drained soils on ridgetops and hillsides on uplands of the Southern Coastal Plain

Four map units in Washington County are made up predominantly of well drained soils of the Southern Coastal Plain. The nearly level soils are on ridgetops, the very gently sloping and gently sloping soils are on the ridgetops and hillsides, and the sloping soils are on hillsides. Slopes range from 0 to 12 percent. These soils have mainly a brownish sandy or loamy surface layer and a predominantly reddish or yellowish sandy to clayey subsoil or underlying layers.

4. Orangeburg-Faceville-Greenville

Nearly level to sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

This map unit is made up of nearly level and very gently sloping soils commonly on broad, smooth ridgetops and gently sloping soils on convex hillsides that are eroded. These soils are throughout Washington County. Slopes range from 0 to 10 percent.

This map unit makes up about 30 percent of the county. About 48 percent is Orangeburg soils; 30 percent, Faceville soils; and 9 percent, Greenville soils. The rest is soils of minor extent.

The Orangeburg soils have a sandy surface layer and a predominantly red loamy subsoil. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is predominantly red.

The Faceville soils have a loamy surface layer and a predominantly red clayey subsoil. Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is predominantly red sandy clay to a depth of 65 inches or more.

The Greenville soils have a loamy surface layer and a predominantly dark red clayey subsoil. Typically, the surface layer is dark reddish brown sandy loam about 6 inches thick. The subsoil extends to a depth of 70 inches or more. The upper few inches is dark reddish brown sandy clay loam and the rest is dark red sandy clay.

Of minor extent are areas of Bibb, Kinston, Lucy, and Red Bay soils. Bibb and Kinston soils are poorly drained and are on flood plains of smaller streams. Lucy and Red Bay soils are associated on the upland landscape with the major soils.

The soils in this map unit are used mainly for cultivated crops and pasture, but many areas are wooded. They are well suited to these uses. Slopes that have no plant cover need to be protected from erosion. These soils are well suited to urban and recreation uses. The clayey subsoil is a concern if shallow excavations are to be made, or if sanitary facilities are to be installed.

5. Fuquay-Lakeland-Dothan

Nearly level to sloping, well drained and excessively drained soils that have a sandy surface layer and a loamy subsoil or sandy underlying layers

This map unit is made up of nearly level and very gently sloping soils commonly on smooth ridgetops, gently sloping soils commonly on smooth ridgetops and hillsides, and sloping soils on narrow ridgetops and short hillsides. These soils are mainly south of Deepstep. Slopes range from 0 to 12 percent.

This map unit makes up about 5 percent of the county. About 52 percent is Fuquay soils; 13 percent, Lakeland soils; and 11 percent, Dothan soils. The rest is soils of minor extent.

The Fuquay soils are well drained and have a thick sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 23 inches. The subsoil to a depth of 70 inches or more is yellowish brown sandy clay loam that has yellowish red, pale brown, and light gray mottles in the lower part. It is 5 percent or more plinthite below a depth of about 52 inches.

The Lakeland soils are excessively drained and are sandy throughout the profile. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers to a depth of 85 inches or more are sand. The upper layer is yellowish brown, the middle layers are brownish yellow, and the lower layer is very pale brown.

The Dothan soils are well drained and have a thin sandy surface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and yellowish red mottles; the lower part is mottled yellowish brown, strong brown, red, and yellowish red. Plinthite is below a depth of 35 inches. A few nodules of ironstone are in the surface layer and upper part of the subsoil.

Of minor extent are areas of Ardilla, Ocilla, and Rains soils. Ardilla and Ocilla soils are somewhat poorly drained, and Rains soils are poorly drained. These soils commonly are in lower lying positions on the landscape.

The soils in this map unit are used mainly for woodland, but some areas are used for cultivated crops

and pasture. Most of these soils are only moderately suited to farming because the available water capacity is low. These soils are well suited to most urban uses. In most places, the surface layer is sandy to a depth of 2 to 3 feet, or the soil is sandy throughout. The sandy texture needs to be considered in planning recreation developments.

6. Dothan-Tifton-Faceville

Nearly level to gently sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil that commonly is 5 percent or more plinthite

This map unit is made up of very gently sloping soils commonly on smooth ridgetops and gently sloping soils on convex hillsides. The soils on ridgetops are nearly level, and the soils on hillsides are eroded in many places. These soils are mainly in the vicinity of Riddleville, Tennille, and in small areas north of Warthen. Slopes range from 0 to 10 percent.

This map unit makes up about 22 percent of the county. About 40 percent is Dothan soils; 23 percent, Tifton soils; and 17 percent, Faceville soils. The rest is soils of minor extent.

The Dothan soils have a few nodules of ironstone. They have a sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and yellowish red mottles; the lower part is mottled yellowish brown, strong brown, red, and yellowish red. Plinthite is below a depth of 35 inches.

The Tifton soils have many nodules of ironstone. They have a sandy or loamy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper few inches is yellowish brown, the middle part is strong brown, and the lower part is strong brown and has red and light gray mottles. The subsoil is 5 percent or more plinthite below a depth of about 32 inches.

The Faceville soils have a loamy surface layer and a predominantly clayey subsoil. Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is predominantly red sandy clay to a depth of 65 inches or more.

Of minor extent are areas of Bibb, Grady, Kinston, and Marlboro soils. Bibb and Kinston soils are poorly drained and are on flood plains of the smaller streams. Grady soils are poorly drained and are in saucer-sheped depressional areas. Marlboro soils are well drained and are associated on the landscape with the major soils.

Many areas of soils in this map unit are used for cultivated crops and pasture. A few areas are wooded. The soils are well suited to these uses. Soils that have no plant cover need to be protected from erosion. Most areas are well suited to urban and recreation uses. In places, however, the slowly permeable subsoil is a limitation for septic tank absorption fields.

7. Cowarts-Nankin-Dothan

Nearly level to sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

This map unit is made up of nearly level soils on smooth ridgetops, very gently sloping soils mainly on undulating and convex ridgetops, and gently sloping and sloping soils on short, irregularly shaped hillsides. The soils on hillsides are eroded in most places. These soils mainly are in the southeastern part of Washington County. Slopes range from 0 to 12 percent.

This map unit makes up about 7 percent of the county. About 26 percent is Cowarts soils; 23 percent, Nankin soils; and 20 percent, Dothan soils. The rest is soils of minor extent.

The Cowarts soils have a sandy surface layer and a loamy subsoil. Typically, the surface layer is dark brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 28 inches. It is yellowish brown throughout and has yellowish red and red mottles in the lower part. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, red, and strong brown sandy clay loam that has pockets of sandier and more clayey material. A few nodules of ironstone are on the surface and within about 20 inches of the surface.

The Nankin soils have a sandy surface layer and a clayey subsoil. Typically, the surface layer is dark grayish brown loamy sand about 5 inches thick. The subsoil extends to a depth of 50 inches. The upper part is predominantly sandy clay, and the lower part is sandy clay loam. The subsoil is strong brown throughout and has reddish, brownish, and grayish mottles in the lower part. The underlying material is sandy clay loam to a depth of 65 inches or more. It is mottled in yellowish red, strong brown, light gray, and yellowish brown.

The Dothan soils have a sandy surface layer and a loamy subsoil that is 5 percent or more plinthite. Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and yellowish red mottles; the lower part is mottled yellowish brown, strong brown, red, and yellowish red. A few nodules of ironstone are in the surface layer and upper part of the subsoil.

Of minor extent are areas of Bibb, Fuquay, Kinston, and Susquehanna soils. Bibb and Kinston soils are poorly drained and are on flood plains. Fuquay soils are well drained and are associated on the landscape with

the major soils. Susquehanna soils are somewhat poorly drained and are on undulating ridgetops and short irregularly shaped hillsides.

The soils in this map unit are mostly wooded. However, some areas in the extreme southeastern part of the county are used for cultivated crops. These soils are only moderately suited to farming and to the production of trees, but they are well suited to many urban and recreation uses. Slow permeability in the subsoil needs to be considered if septic tank filter fields are to be installed.

excessively drained and somewhat excessively drained soils on ridgetops and hillsides on uplands of the Southern Coastal Plain

One map unit in Washington County is made up of somewhat excessively drained and excessively drained soils of the Southern Coastal Plain. The nearly level soils are on ridgetops, and the very gently sloping to sloping soils are on ridgetops and hillsides. Slopes range from 0 to 12 percent. These soils have a grayish or brownish surface layer and a brownish, yellowish, or reddish sandy subsoil or underlying layers.

8. Lakeland-Eustis

Nearly level to sloping, excessively drained and somewhat excessively drained soils that are sandy throughout

This map unit is made up of nearly level and very gently sloping soils on broad, smooth and convex ridgetops and gently sloping to sloping soils on narrow ridgetops and short, irregularly shaped hillsides. The soils mainly are in the southwestern part of Washington County. Slopes range from 0 to 12 percent.

This map unit makes up about 4 percent of the county. About 44 percent is Lakeland soils, and 30 percent is Eustis soils. The rest is soils of minor extent.

The Lakeland soils are excessively drained. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 85 inches or more. The upper layer is yellowish brown, the middle layers are brownish yellow, and the lower layer is very pale brown.

The Eustis soils are somewhat excessively drained. Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer is loamy sand that extends to a depth of 28 inches. It is dark yellowish brown in the upper part and brown in the lower part. The subsoil is yellowish red loamy sand to a depth of 70 inches or more.

Of minor extent are areas of Bibb, Kinston, Orangeburg, and Red Bay soils. Bibb and Kinston soils are poorly drained and are on flood plains. Orangeburg and Red Bay soils are well drained and are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded, but a few areas are used for cultivated crops or pasture. These soils are poorly suited to farming and only moderately suited to the production of trees because of low available water capacity. They are well suited to most urban uses. However, because the soils are sandy throughout, special consideration is needed in planning recreation developments and sanitary facilities.

disturbed soil material and pits on ridgetops and hillsides on uplands of the Southern Coastal Plain

One map unit in Washington County is made up of gently sloping to moderately steep disturbed soil material and pits in areas that were mined for kaolin on uplands of the Southern Coastal Plain. Slopes range from 5 to 17 percent. The soil material is brownish, reddish, grayish, or white. It generally is in strata that range from sandy or loamy to clayey. The pits are about 15 to 75 feet deep and range from 5 to 125 acres.

9. Udorthents-Pits

Gently sloping to moderately steep disturbed soil material and Pits in areas that were mined for kaolin

This map unit is made up of gently sloping to moderately steep areas of disturbed soil material and Pits. The soil material is in high mounds or is leveled and smoothed. The Pits are deep and were formed by removing soil material that overlay deposits of kaolin. This map unit is mainly in the vicinity of Deepstep and north and south of Georgia Highway 24 near Baldwin County.

This map unit makes up about 1 percent of the county. About 75 percent is Udorthents, and 25 percent is Pits.

The Udorthents makes up about 75 percent of each mapped area. Typically, the soil material is yellowish brown, strong brown, red, light gray, and white. It generally is in strata that are variable, ranging from sandy or loamy to clayey.

The Pits make up about 25 percent of each mapped area. Typically, Pits are about 15 to 75 feet deep and range from 5 to 125 acres. Some Pits of as much as 70 acres contain water.

Udorthents on the smoothed, leveled, and adequately prepared areas responds well to grasses and legumes if lime and fertilizer are applied. Commonly, rye is planted on the smoothed and shaped areas in the fall and winter to provide cover that will help to control erosion and conserve moisture during the establishment of perennial vegetation. Some of the smoothed areas have been established in pasture. Other small isolated areas are used for cultivated crops. Some areas have naturally revegetated to trees. Other areas have been planted to loblolly pine.

The Pits commonly are nearly barren. Those that contain water have been stocked with fish. These areas are not suited to urban development. However, they are suited to some recreation uses and to wildlife habitat.

predominantly well drained soils on ridgetops and hillsides on uplands of the Sand Hills

Two map units in Washington County are made up of predominantly well drained soils of the Sand Hills. The nearly level and very gently sloping soils are on ridgetops, and the gently sloping to moderately steep soils are on ridgetops and hillsides. Slopes range from 0 to 17 percent. These soils have a sandy or loamy surface layer and a sandy or loamy subsoil or underlying layers. The surface layer is mainly brownish, and the subsoil and underlying layers are brownish, reddish, or yellowish; or the subsoil is brownish or reddish and has brown, gray, and red mottles.

10. Vaucluse-Ailey-Cowarts

Very gently sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit is made up of very gently sloping and gently sloping soils on smooth to undulating convex ridgetops and sloping and moderately steep soils commonly on short, irregularly shaped hillsides. These soils mainly are in the northern and northwestern parts of Washington County. Slopes range from 2 to 17 percent.

This map unit makes up about 6 percent of the county. About 29 percent is Vaucluse soils; 28 percent, Ailey soils; and 24 percent, Cowarts soils. The rest is soils of minor extent.

The Vaucluse soils have a sandy surface layer. Typically, the surface layer is dark grayish brown loamy sand about 4 inches thick. The subsurface layer is yellowish brown loamy sand that extends to a depth of 10 inches. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish red or red and has yellowish brown, strong brown, and light gray mottles; the lower part is mottled red, strong brown, light gray, and yellowish brown. The lower part is firm and brittle.

The Ailey soils have a thick, sandy surface and subsurface layer. Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 22 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and red mottles; and the lower part is mottled yellowish brown, red, and light gray.

The Cowarts soils have a sandy or loamy surface layer. Typically, the surface layer is dark brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 28 inches. It is yellowish brown throughout and has yellowish red and red mottles in the lower part. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, red, and strong brown sandy clay loam that has pockets of sandier and more clayey material. A few nodules of ironstone are on the surface and within about 20 inches of the surface.

Of minor extent are areas of Fuquay and Nankin soils. These soils are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded. A few areas are used for cultivated crops and pasture. These soils are poorly suited to farming and are moderately suited to the production of trees. They are well suited to most urban uses. Most of the dominant soils have a slowly permeable, firm and brittle subsoil layer. This layer needs to be considered in planning use and management. Slopes that have no plant cover need to be protected from erosion.

11. Lakeland-Lucy-Orangeburg

Nearly level to moderately steep, excessively drained and well drained soils that have a sandy or loamy surface layer and a loamy subsoil or sandy underlying layers

This map unit is made up of nearly level and very gently sloping soils commonly on smooth and convex ridgetops and gently sloping to moderately steep soils on narrow ridgetops and short hillsides. These soils are mainly in the northern part of Washington County. Slopes range from 0 to 17 percent.

This map unit makes up about 8 percent of the county. About 70 percent is Lakeland soils; 10 percent, Lucy soils; and 7 percent, Orangeburg soils. The rest is soils of minor extent.

The Lakeland soils are excessively drained and are sandy throughout. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 85 inches or more. The upper layer is yellowish brown, the middle layers are brownish yellow, and the lower layer is very pale brown.

The Lucy soils are well drained and have a thick sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 23 inches. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish red sandy loam, and the lower part is red sandy clay loam.

The Orangeburg soils are well drained and have a sandy surface layer and a loamy subsoil. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is predominantly red.

Of minor extent are areas of Ailey, Bibb, and Kinston soils. Bibb and Kinston soils are poorly drained and are on flood plains. Ailey soils are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded, but a few areas are used for cultivated crops or pasture. Most

areas are poorly suited to farming, tree production, and recreation uses. The less sandy soils are well suited to urban use. Droughtiness commonly is a concern in establishing and managing vegetation. For most of the soils, sandiness is a concern that needs to be considered in planning sanitary facilities.

well drained soils on hillsides on uplands of the Southern Coastal Plain

One map unit in Washington County is made up of well drained, sloping and moderately steep soils on hillsides of the Southern Coastal Plain. Slopes range from 8 to 17 percent. These soils have a brownish, sandy or loamy surface layer and a red loamy subsoil.

12. Orangeburg

Sloping and moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit is made up of sloping to moderately steep soils on hillsides mainly near the major drainage systems of Buffalo and Keg Creeks. The slopes are irregularly shaped and short and are generally parallel to the well defined drainage systems. Slopes range from 8 to 17 percent.

This map unit makes up about 5 percent of the county. About 93 percent is Orangeburg soils, and the rest is soils of minor extent.

Typically, the Orangeburg soils have a surface layer of brown loamy sand about 5 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown and yellowish red, and the lower part is red and has a few yellowish brown mottles.

Of minor extent are areas of Faceville and Greenville soils. These soils are on smoother and less sloping hillsides than the major soil.

The soils in this map unit are mainly wooded. Some areas are used for pasture. These soils are well suited to the production of trees, but they are only moderately suited to pasture. They are only moderately suited to most urban and recreation uses because of slope. This limitation needs to be considered in planning use and management.

Wilkinson County

poorly drained to well drained soils on flood plains

Two map units in Wilkinson County are made up of nearly level, predominantly loamy, poorly drained to well drained soils on flood plains. Slopes range from 0 to 2 percent. The poorly drained soils commonly are in somewhat lower lying positions than the somewhat poorly drained to well drained soils. The poorly drained soils have a predominantly brownish surface layer and a gray, mottled subsoil or underlying layers. The somewhat poorly drained to well drained soils are brownish throughout, and the middle or lower part of the soil is mottled.

1. Chewacla-Chastain-Congaree

Nearly level, poorly drained to well drained soils that have a loamy surface layer and a loamy or clayey subsoil or loamy underlying layers

This map unit is made up of nearly level soils on broad flood plains of the Oconee River and its tributaries. These soils commonly are in low lying positions and are poorly drained, or they are higher lying and better drained. They have high probability of being flooded in winter and early in spring. Slopes are less than 2 percent.

This map unit makes up about 6 percent of the county. About 45 percent is Chewacla soils; 25 percent, Chastain soils; and 12 percent, Congaree soils. The rest is soils of minor extent.

The Chewacla soils are somewhat poorly drained. Typically, the surface layer is brown loam about 6 inches thick. It is underlain by dark brown silt loam about 4 inches thick. The subsoil extends to a depth of 50 inches. The upper part is yellowish brown silt loam; the middle part is light yellowish brown sandy clay loam that has strong brown and light brownish gray mottles; the lower part is mottled yellowish brown, light gray, and strong brown sandy clay loam. The underlying material is stratified, light gray and brownish yellow loamy sand and sandy loam to a depth of 65 inches or more.

The Chastain soils are poorly drained. Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 65 inches or more is gray clay that has strong brown mottles.

The Congaree soils are well drained or moderately well drained. Typically, the surface layer is reddish brown loam about 5 inches thick. The underlying, stratified material to a depth of 75 inches is mainly reddish brown with brown mottles. The strata are loam, silty clay loam, and silt loam.

Of minor extent are areas of Bibb and Kinston soils. These soils are poorly drained and are in small drainageways on the outer part of the flood plain.

The soils in this map unit are wooded. However, the better drained areas could be used for cultivated crops or pasture if extensive flood control and drainage measures were installed and maintained. Most areas of this map unit are well suited to the production of trees. However, equipment limitations and seedling mortality are management concerns in most places. Unless most of these soils are drained, they are poorly suited to farming and to most urban and recreation uses. The hazards of flooding and wetness are the main concerns in use and management. These limitations can be overcome only by extensive flood control and drainage measures.

2. Bibb-Kinston

Nearly level, poorly drained soils that have a loamy or sandy surface layer and loamy or sandy underlying layers

This map unit is made up of nearly level soils on somewhat narrow flood plains of streams and smaller tributaries throughout most of Wilkinson County. These soils are in low lying positions and the probability of being flooded is high late in winter and early in spring. Slopes are less than 2 percent.

This map unit makes up about 8 percent of the county. About 58 percent is Bibb soils, and 35 percent is Kinston soils. The rest is soils of minor extent.

The Bibb soils have mainly a loamy surface layer and sandy underlying layers. Typically, the surface layer is about 13 inches thick. It is dark grayish brown sandy loam in the upper part and gray loamy sand in the lower part. The underlying material extends to a depth of 65 inches or more. It is stratified, gray sandy loam and loamy sand, and it has yellowish brown mottles.

The Kinston soils are loamy throughout. Typically, the surface layer is sandy loam about 11 inches thick. It is dark gray in the upper part and gray in the lower part. The underlying layers to a depth of 52 inches are gray sandy clay loam and clay loam, and they have brownish yellow mottles. Below these layers is stratified, gray loamy sand and sand to a depth of 65 inches or more.

Of minor extent are areas of Ochlockonee, Pelham, and Rains soils. Ochlockonee soils are well drained and commonly are along the smaller tributaries that branch from the upper end of the flood plain. Pelham and Rains soils are associated on the landscape with the major soils.

Most of the soils in this map unit are used for woodland. Some small areas are used for pasture. Most of the soils are well suited to the production of trees. However, equipment limitations and seedling mortality are management concerns in most places. These soils are poorly suited to farming and to urban uses. The hazards of flooding and wetness are chief concerns in use and management.

poorly drained and somewhat poorly drained soils on low lying uplands and near drainageways.

One map unit in Wilkinson County is made up of nearly level, poorly drained and somewhat poorly drained soils on low lying uplands and near drainageways. The soils have mainly a grayish sandy surface layer and subsurface layer and a grayish mottled or brownish mottled loamy subsoil.

3. Mascotte-Ocilla-Pelham

Nearly level, poorly drained and somewhat poorly drained soils that have a sandy surface layer and a loamy subsoil

This map unit is made up of nearly level soils on broad, low lying uplands and near small drainageways. Soils in the depressional areas are ponded and those near drainageways are flooded briefly late in winter and early in spring. These soils are in the southeastern part of Wilkinson County near Ball's Ferry landing. Slopes range from 0 to 2 percent.

This map unit makes up about 2 percent of the county. About 30 percent is Mascotte soils; 13 percent, Ocilla soils; and 12 percent, Pelham soils. The rest is soils of minor extent.

The Mascotte soils are poorly drained and have a thin, organically stained layer at a depth of about 15 inches. Typically, the surface layer is very dark gray sand about 3 inches thick. The subsurface layer is gray sand that extends to a depth of 15 inches. It is underlain by a weakly cemented, organically stained layer of dark brown sand that extends to a depth of 20 inches. Below this layer to a depth of 36 inches is pale brown sand. That layer is underlain to a depth of 65 inches or more by sandy clay loam that is mainly gray and has yellowish brown mottles.

The Ocilla soils are somewhat poorly drained. Typically, the surface layer is very dark gray loamy sand about 7 inches thick. The subsurface layer is loamy sand that extends to a depth of 26 inches. It is light brownish gray in the upper part, and pale brown in the lower part. The subsoil is dominantly sandy clay loam to a depth of 65 inches or more. The upper part is brownish yellow and has light brownish gray mottles; the middle part is brownish yellow and has light gray and yellowish brown mottles; the lower part is mottled yellowish brown, yellowish red, and light gray.

The Pelham soils are poorly drained. Typically, the surface layer is very dark gray loamy sand about 7 inches thick. The subsurface layer is gray loamy sand that extends to a depth of 28 inches or more. It is predominantly light gray and has brownish yellow mottles.

Of minor extent are areas of Ardilla, Lakeland, Persanti, and Rains soils. Ardilla soils are somewhat poorly drained, and Rains soils are poorly drained. They are associated on the landscape with the major soils. Persanti soils are moderately well drained and are on stream terraces. Lakeland soils are excessively drained and are on higher lying uplands.

The soils in this map unit are mostly wooded. They are well suited to the production of trees. Equipment limitations and seedling mortality are management concerns, especially in areas that are subject to ponding and flooding. These soils are poorly suited to most urban uses. Wetness is the primary concern in use and management. This limitation can be overcome only by drainage.

well drained soils on ridgetops and hillsides on uplands of the Southern Coastal Plain

Two map units in Wilkinson County are made up of well drained soils of the Southern Coastal Plain. The nearly level soils are on ridgetops, and the very gently sloping to sloping soils are mainly on hillsides. Slopes range from 0 to 10 percent. These soils have mainly a brownish sandy or loamy surface layer and predominantly a reddish or yellowish loamy or clayey subsoil.

4. Orangeburg-Faceville

Nearly level to sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

This map unit is made up of nearly level and very gently sloping soils commonly on broad, smooth ridgetops and gently sloping soils on convex hillsides. The soils on hillsides are eroded. These soils are throughout Wilkinson County. Slopes range from 0 to 10 percent.

This map unit makes up about 30 percent of the county. About 78 percent is Orangeburg soils, and 10 percent is Faceville soils. The rest is soils of minor extent.

The Orangeburg soils have a predominantly red loamy subsoil. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is predominantly red.

The Faceville soils have a predominantly red clayey subsoil. Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is predominantly red sandy clay to a depth of 65 inches or more.

Of minor extent are areas of Bibb, Greenville, Kinston, and Lucy soils. Bibb and Kinston soils are poorly drained and are on flood plains of the smaller streams. Greenville and Lucy soils are associated on the upland landscape with the major soils.

The soils in this map unit are mainly wooded, but a few areas are used for cultivated crops and pasture. They are well suited to these uses. Slopes that have no plant cover need to be protected from erosion. These soils are well suited to urban and recreation uses. In places, a clayey subsoil is a concern if shallow excavations are to be made, or if sanitary facilities are to be installed.

5. Dothan-Orangeburg-Fuquay

Nearly level to gently sloping, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit is made up of nearly level soils on smooth ridgetops, very gently sloping soils on smooth and convex ridgetops and hillsides, and gently sloping soils on irregularly shaped, convex hillsides. The soils mainly are in the northern part of Wilkinson County near the Oconee River and in the vicinity of Allentown and Gordon. Slopes range from 0 to 8 percent.

This map unit makes up about 4 percent of the county. About 40 percent is Dothan soils; 29 percent, Orangeburg soils; and 16 percent, Fuquay soils. The rest is soils of minor extent.

The Dothan soils have a sandy surface layer. Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and yellowish red mottles; the lower part is mottled yellowish brown, strong brown, red, and yellowish red. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

The Orangeburg soils have a sandy or loamy surface layer. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is predominantly red.

The Fuquay soils have a thick sandy surface layer. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 23 inches. The subsoil is sandy clay loam to a depth of 70 inches or more. It is yellowish brown, and the lower part has yellowish red, pale brown, and light gray mottles. The subsoil is 5 percent or more plinthite below a depth of about 52 inches.

Of minor extent are areas of Cowarts, Lucy, Lakeland, and Nankin soils. Cowarts and Nankin soils are mostly on hillsides that are short and irregularly shaped. Lucy soils are well drained, and Lakeland soils are excessively drained. They are associated on the landscape with the major soils.

The soils in this map unit are used mainly for cultivated crops and pasture. A few areas are used for residential subdivisions and small industrial developments. Most of the soils are well suited to these uses. Slopes that have no plant cover need to be protected from erosion. Most areas of these soils are well suited to the production of trees. Slow permeability in most of the soils is a limitation for septic tank absorption fields. In places, the thick sandy surface layer needs special consideration in planning recreation developments.

well drained to excessively drained soils on ridgetops and hillsides on uplands of the Southern Coastal Plain

Two map units in Wilkinson County are made up of well drained and excessively drained soils of the

Southern Coastal Plain. The nearly level soils are on ridgetops, and the very gently sloping to sloping soils are on ridgetops and hillsides. Slopes range from 0 to 12 percent. These soils have mainly a brownish or grayish surface layer and predominantly a reddish or yellowish sandy or loamy subsoil or underlying layer.

6. Lakeland-Eustis

Nearly level to sloping, excessively drained and somewhat excessively drained soils that are sandy throughout

This map unit is made up of nearly level and very gently sloping soils on broad, smooth, and convex ridgetops and gently sloping to sloping soils on narrow ridgetops and short, irregularly shaped hillsides. These soils are mainly in the central and southern parts of Wilkinson County. Slopes range from 0 to 12 percent.

The map unit makes up about 4 percent of the county. About 50 percent is Lakeland soils, and 45 percent is Eustis soils. The rest is soils of minor extent.

The Lakeland soils are excessively drained. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 85 inches or more. The upper part is yellowish brown, the middle part is brownish yellow, and the lower part is very pale brown.

The Eustis soils are somewhat excessively drained. Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer is loamy sand that extends to a depth of 28 inches. It is dark yellowish brown in the upper part and brown in the lower part. The subsoil is yellowish red loamy sand to a depth of 70 inches or more.

Of minor extent are areas of Fuquay and Orangeburg soils. These soils are well drained and are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded. A few areas are cultivated or used for pasture. These soils are poorly suited to farming and only moderately suited to the production of trees because of low available water capacity. The soils are well suited to most urban uses. However, because the soils are sandy throughout, special consideration is needed in planning recreation developments and sanitary facilities.

7. Lakeland-Orangeburg-Lucy

Nearly level to moderately steep, excessively drained and well drained soils that have a sandy or loamy surface layer and a loamy subsoil or sandy underlying layers

This map unit is made up of nearly level and very gently sloping soils commonly on smooth and convex ridgetops and gently sloping to moderately steep soils on narrow ridgetops and short hillsides. These soils are throughout Wilkinson County. Slopes range from 0 to 17 percent.

This map unit makes up about 18 percent of the county. About 38 percent is Lakeland soils; 26 percent, Orangeburg soils; and 15 percent, Lucy soils. The rest is soils of minor extent.

The Lakeland soils are excessively drained and are sandy throughout. Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 85 inches or more. The upper layer is yellowish brown, the middle layers are brownish yellow, and the lower layer is very pale brown.

The Orangeburg soils are well drained and have a sandy or loamy surface layer and a loamy subsoil. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is predominantly red.

The Lucy soils are well drained and have a thick sandy surface layer and a loamy subsoil. Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand that extends to a depth of 23 inches. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish red sandy loam, and the lower part is red sandy clay loam.

Of minor extent are areas of Bibb, Fuquay, and Kinston soils. Bibb and Kinston soils are poorly drained and are on flood plains of smaller streams. Fuquay soils are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded, but a few areas are used for cultivated crops and pasture. Most of the soils are poorly suited to farming, to the production of trees, and to recreation uses. The less sandy soils are well suited to urban uses. Droughtiness commonly is a concern in establishing and managing vegetation. In most of the soils, sandiness is a concern that needs to be considered in planning sanitary facilities.

disturbed soil material and pits on ridgetops and hillsides on uplands of the Southern Coastal Plain

One map unit in Wilkinson County is made up of gently sloping to moderately steep disturbed soil material and pits in areas that were mined for kaolin on uplands of the Southern Coastal Plain. Slopes range from 5 to 17 percent. The soil material is brownish, reddish, grayish, and white. It generally is in strata that range from sandy or loamy to clayey. The pits are about 15 to 75 feet deep and range from 5 to 125 acres.

8. Udorthents-Pits

Gently sloping to moderately steep disturbed soil material and Pits in areas that were mined for kaolin

This map unit is made up of gently sloping to steep areas of disturbed soil material and Pits. The soil material is in high mounds or is leveled and smoothed.

The Pits are deep and were formed by removing soil material that overlaid deposits of kaolin. This map unit is mainly south of Gordon.

This map unit makes up about 1 percent of the county. About 75 percent is Udorthents, and 25 percent is Pits.

The Udorthents makes up about 75 percent of each mapped area. Typically, the soil material is yellowish brown, strong brown, red, light gray, and white. It generally is in strata that are variable, ranging from sandy or loamy to clayey.

The Pits make up about 25 percent of each mapped area. Typically, Pits are about 15 to 75 feet deep and range from 5 to 125 acres. Some Pits of as much as 70 acres contain water.

Udorthents on the smoothed, leveled, and adequately prepared areas responds well to grasses and legumes if lime and fertilizer are applied. Commonly, rye is planted on the smoothed and shaped areas in the fall and winter to provide cover to help control erosion and conserve moisture during the establishment of perennial vegetation. Some of the smoothed areas have been established in pasture. Other small isolated areas are used for cultivated crops. Some areas have naturally revegetated to trees. Other areas have been planted to loblolly pine.

The Pits commonly are nearly barren. Those that contain water have been stocked with fish. These areas are not suited to urban development. However, they are suited to some recreation uses and to wildlife habitat.

well drained soils on ridgetops and hillsides on uplands of the Sand Hills

One map unit in Wilkinson County is made up of well drained soils of the Sand Hills. The very gently sloping to gently sloping soils are on ridgetops and hillsides, and the sloping and moderately steep soils are on hillsides. Slopes range from 2 to 17 percent. These soils have mainly a brownish sandy or loamy surface layer and a reddish or brownish loamy subsoil that has brown, gray, and red mottles.

9. Vaucluse-Ailey-Cowarts

Very gently sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit is made up of very gently sloping and gently sloping soils on smooth to undulating, convex ridgetops and sloping and moderately steep soils commonly on short, irregularly shaped hillsides. These soils mainly are in the northern part of Wilkinson County. Slopes range from 2 to 17 percent.

This map unit makes up about 16 percent of the county. About 27 percent is Vaucluse soils; 25 percent, Ailey soils; and 14 percent, Cowarts soils. The rest is soils of minor extent.

The Vaucluse soils have a sandy surface layer. Typically, the surface layer is dark grayish brown loamy sand about 4 inches thick. The subsurface layer is yellowish brown loamy sand that extends to a depth of 10 inches. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. It is firm and brittle in the lower part. The upper part of the subsoil is yellowish brown; the middle part is yellowish red or red and has yellowish brown, strong brown, and light gray mottles; the lower part is mottled red, strong brown, light gray, and yellowish brown.

The Ailey soils have a thick, sandy surface layer. Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The subsurface layer is light yellowish brown loamy sand that extends to a depth of 22 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and red mottles; the lower part is mottled yellowish brown, red, and light gray.

The Cowarts soils have a sandy or loamy surface layer. Typically, the surface layer is dark brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 28 inches. It is yellowish brown throughout and has yellowish red and red mottles in the lower part. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, red, and strong brown sandy clay loam that has pockets of sandier and more clayey material. A few nodules of ironstone are on the surface and within about 20 inches of the surface.

Of minor extent are areas of Lakeland, Nankin, and Susquehanna soils. Lakeland and Nankin soils are excessively drained, and Susquehanna soils are poorly drained. All of these soils are associated on the landscape with the major soils.

The soils in this map unit are mainly wooded. A few areas are used for cultivated crops and pasture. These soils are poorly suited to farming and moderately suited to the production of trees. They are well suited to most urban uses. Most of the dominant soils have a slowly permeable, firm and brittle subsoil layer that needs to be considered in planning use and management. Slopes that have no plant cover need to be protected from erosion.

well drained soils on hillsides on uplands of the Southern Coastal Plain

One map unit in Wilkinson County is made up of well drained, sloping and moderately steep soils on hillisdes of the Southern Coastal Plain. Slopes range from 8 to 17 percent. The soils have a brownish sandy or loamy surface layer and a red loamy subsoil.

10. Orangeburg

Sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

This map unit is made up of sloping to moderately steep soils on hillsides mainly near major drainage

systems. The slopes are irregularly shaped and short and are generally parallel to the well defined drainage systems. Most of these soils are in the southern and eastern parts of Wilkinson County. Slopes range from 8 to 17 percent.

This map unit makes up about 11 percent of the county. About 86 percent is Orangeburg soils, and the rest is soils of minor extent.

Typically, the Orangeburg soils have a surface layer of brown loamy sand about 5 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper 4 inches is strong brown, and the rest is red. The lower part has a few yellowish brown mottles.

Of minor extent are areas of Faceville and Red Bay soils. Faceville and Red Bay soils are on smoother and less sloping hillsides than the major soil.

The soils in this map unit are mainly wooded. Some areas are used for pasture. These soils are well suited to the production of trees, but they are only moderately suited to pasture. Because of slope, these soils are only moderately suited to most urban and recreation uses. This limitation needs to be considered in planning use and management of the soils.

broad land use considerations

Considerable acreage in the survey area is used for woodland, cropland, and pasture and for urban and other related development. The general soil map can be used for broad planning, but it cannot be used to locate the site for a specific structure. In general the soils in the survey area that are well suited to cultivated crops also are well suited to urban development. The data about specific soils can be helpful in planning future land use patterns. Interpretations made from the general soil map for broad land use planning are specific for each county. The following broad land use considerations, however, apply to the entire survey area.

More than 75 percent of the survey area is used for woodland. The soils are moderately suited or well suited to the production of trees.

About 24 percent of the survey area is used for pasture and cultivated crops. The soils have the capability of almost doubling this percentage. Some areas, however, are not suited to farming. They include the steeper soils on hillsides in the Vaucluse-Ailey-Cowarts map unit, the Lakeland-Lucy-Orangeburg map unit, and the Orangeburg map unit. In addition, the soils in the Lakeland-Eustis map unit, which are on smoother ridgetops and hillsides, are not well suited to farming because of low fertility and low available water capacity, and the soils in the Chewacla-Chastain-Congaree map unit are too wet and need to be drained before they can be used for cultivated crops.

The acreage of developed land is expected to increase mainly in the vicinity of Sandersville and Irwinton. In general, about three-fourths of the survey area is moderately suited or well suited to urban use. Those soils that are poorly suited include the soils on hillsides in the Vaucluse-Ailey-Cowarts map unit, the Lakeland-Lucy-Orangeburg map unit, and the Orangeburg map unit; and the nearly level soils on flood plains in the Chewacla-Chastain-Congree map unit and the Bibb-Kinston map unit.

The soils commonly on ridgetops in the Orangeburg-Faceville-Greenville map unit, the Dothan-Tifton-Faceville map unit, the Cowarts-Nankin map unit, and the Vaucluse-Ailey-Cowarts map unit are moderately suited or well suited to parks and recreation areas. In these areas, hardwood and pine forests are common. In the Chewacla-Chastain-Congaree map unit and the Bibb-Kinston map unit, undrained areas and areas ponded by beaver are well suited to nature study. All of the soils provide suitable habitat for many kinds of wildlife.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Orangeburg loamy sand, 2 to 5 percent slopes, is one of several phases in the Orangeburg series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Cowarts-Nankin complex, 2 to 5 percent slopes, is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Chewacla-Chastain association is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Bibb and Kinston sandy loams is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Udorthents-Pit complex is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and suitabilities for many uses. The Glossary defines many of the terms used in describing the soils.

AeC—Alley loamy sand, 2 to 8 percent slopes. This well drained, very gently sloping and gently sloping soil is on ridgetops and hillsides on uplands predominantly of the Sand Hills. Slopes are smooth and convex. Areas are 10 to 60 acres.

Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 22 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. It is firm, brittle, and slightly hard and cemented below a depth of 38 inches. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and red mottles; the lower part is mottled yellowish brown, red, and light gray.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is rapid in the sandy surface layer and slow

in the cemented and brittle layer. Available water capacity is low. Tilth is good. Root penetration is restricted by the cemented layer in the subsoil (fig. 1).

Included with this soil in mapping are a few small areas of Lakeland and Vaucluse soils. The included soils make up about 10 to 20 percent of the map unit.

This Ailey soil is poorly suited to cultivated crops and small grain because of low available water capacity. It is moderately suited to hay and pasture. Returning crop residue to the soil helps to increase available water capacity and decrease leaching of plant nutrients.

Longleaf pine and slash pine are moderately suited to this soil. Equipment limitations and seedling mortality are the main management concerns.

This soil is well suited to most urban uses. Slow permeability in the subsoil is a limitation to the use of this soil for septic tank absorption fields, but in most places this limitation can be overcome by special design and installation. Slope is a limitation for sewage lagoons. The sandy surface layer is a limitation for recreation purposes.

This soil is in capability subclass IVs and woodland suitability group 4s.

Ar—Ardilla loamy sand. This somewhat poorly drained, nearly level soil is on smooth, low lying uplands of the Southern Coastal Plain. Slope is 0 to 2 percent. Areas range from 5 to 110 acres.

Typically, the surface layer is very dark gray loamy sand about 6 inches thick. The subsurface layer is dark grayish brown sandy loam and extends to a depth of 10 inches. The subsoil is sandy clay loam to a depth of 65 inches or more. It is brittle below a depth of about 19 inches. The upper few inches of the subsoil is yellowish brown; the middle part is predominantly yellowish brown and has strong brown, light gray, and yellowish red mottles; the lower part is mottled yellowish brown, yellowish red, light gray, and strong brown.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil

Figure 1.—A cutbank that exposes a profile of Ailey loamy sand, 2 to 8 percent slopes. Root penetration is restricted by the cemented layer in the subsoil.

and moderately slow in the lower part. Available water capacity is medium. Tilth is good. Although the root zone is deep, the water table, which is commonly at a depth of 1 foot to 2 feet from November through April, limits root penetration.

Included with this soil in mapping are small areas of Ocilla and Persanti soils. The included soils make up about 10 to 20 percent of the map unit.

This Ardilla soil is well suited to row crops, small grain, hay, and pasture. It is restricted somewhat because of wetness. However, drainage commonly can be obtained by the installation of open ditches or buried drains.

Longleaf pine, slash pine, and yellow-poplar are well suited to this soil. The use of conventional equipment commonly is restricted on this soil in winter and spring because of wetness. However, operations can be successfully performed during the drier seasons.

This soil is poorly suited to most urban and recreation uses because of wetness and moderately slow permeability. These limitations can be overcome to some extent by drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

Bk—Bibb and Kinston sandy loams. This map unit consists of poorly drained, nearly level soils on flood plains of the Southern Coastal Plain. The soils commonly are flooded for brief periods mostly late in winter and early in spring. Bibb and Kinston soils are in an irregular pattern on the landscape. Areas of each soil are large enough to map separately, but because of present and predicted use, they were mapped as one unit. Most mapped areas are made up of both soils, but a few areas have only one of the soils. Slopes are 0 to 2 percent. Areas range from 50 to 1,200 acres.

About 58 percent of this map unit is Bibb soils. Typically, the surface layer is about 13 inches thick. The upper part is dark grayish brown sandy loam, and the lower part is dark gray loamy sand. The underlying material is stratified sandy loam and loamy sand to a depth of 65 inches or more. The layers are gray and have yellowish brown mottles.

The Bibb soils are low in natural fertility and medium in organic matter content. They are strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. Although the root zone is deep, the water table commonly is within 0.5 foot to 1.5 feet of the surface in winter and spring.

About 35 percent of this unit is Kinston soils. Typically, the surface layer is sandy loam about 11 inches thick. The upper part is dark gray, and the lower part is gray. The underlying layers to a depth of 52 inches are sandy clay loam and clay loam, and they have gray and brownish yellow mottles. Below these layers is stratified, gray loamy sand and sand to a depth of 65 inches or more.

The Kinston soils are low in natural fertility and medium in organic matter content. They are strongly acid or very strongly acid throughout. Permeability is moderate, and available water capacity is medium. Although the root zone is deep, the water table commonly is at a depth of less than 1 foot from November through June.

Included with these soils in mapping are a few intermingled areas of Ochlockonee soils. Also included are areas of soils which are similar to the Kinston soils but have a clayey subsoil. The included soils make up less than 10 percent of the map unit.

These Bibb and Kinston soils are mostly wooded. They are well suited to loblolly pine, sweetgum, and yellow-poplar. Wetness and flooding are limitations to use of equipment in managing and harvesting the tree crop (fig. 2). However, operations commonly can be performed during the drier months. Seedling mortality is also a management concern, but in many places this hazard can be overcome if the soils are drained.

Figure 2.—Typical vegetation on Bibb and Kinston sandy loams. Wetness and flooding limit the use of equipment in management of these soils.

These soils are poorly suited to farming and recreation use, and they are severely limited for urban use because of wetness and the hazard of flooding. These limitations can be overcome only by extensive flood control and drainage measures.

These soils are in capability subclass Vw. Bibb soils are in woodland suitability group 2w, and Kinston soils are in woodland suitability group 1w.

Cc—Chewacla-Chastain association. This map unit consists of nearly level soils on flood plains. These soils formed in loamy and clayey sediment from the uplands of the Southern Piedmont. They are commonly flooded for brief to very long periods from late fall to midspring. The soils are in a regular repeating pattern of somewhat poorly drained Chewacla soils on slightly higher lying areas and poorly drained Chastain soils mostly in sloughs and depressional areas adjacent to the uplands. Slopes are 0 to 2 percent. Areas are mostly long and wide and range from 300 to 1,000 acres.

The somewhat poorly drained Chewacla soils make up about 50 percent of the map unit. Typically, the surface layer is brown loam about 6 inches thick. The subsoil extends to a depth of 50 inches. The upper part is yellowish brown silt loam; the middle part is light yellowish brown sandy clay loam that has strong brown and light brownish gray mottles; the lower part is mottled yellowish brown, light gray, and yellowish red sandy clay loam. The underlying material is stratified, mottled light gray and brownish yellow loamy sand and sandy loam to a depth of 65 inches or more.

Chewacla soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone is deep. The water table commonly is within 0.5 foot to 1.5 feet of the surface from November through May.

The poorly drained Chastain soils make up about 40 percent of the map unit. Typically, the surface layer is brown loam about 6 inches thick. The subsoil to a depth of 65 inches or more is gray clay loam that has strong brown mottles.

Chastain soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is high. Tilth is good. The root zone is deep. The water table commonly is within 1 foot of the surface from November through May.

Included with these soils in mapping are small areas of well drained or moderately well drained Congaree soils. Also included are areas of poorly drained Bibb and Kinston soils in drainageways on the outer part of the flood plain. The included soils make up less than 10 percent of the map unit.

These Chewacla and Chastain soils are only moderately suited to farming because flooding is common during the planting season. Soils on the slightly higher lying part of the flood plain are well suited to farming if they are drained, protected from flooding, and properly managed.

Slash pine, loblolly pine, yellow-poplar, and sweetgum are well suited to these soils. Wetness and flooding limit the use of equipment in managing and harvesting the tree crop. However, operations can be successfully performed during the drier seasons. Drainage is needed in most of the lower lying areas to reduce seedling mortality.

These soils are poorly suited to recreation uses, and they are severely limited for urban use because of wetness and the hazard of flooding. These limitations can be overcome only by extensive flood control and drainage measures.

These soils are in capability subclass Vlw. Chewacla soils are in woodland suitability group 1w, and Chastain soils are in woodland suitability group 2w.

Cg—Chewacla-Congaree association. This map unit consists of nearly level soils on flood plains. The soils formed in loamy sediment from the uplands of the Southern Piedmont. They are commonly flooded for brief periods from late in fall to midspring. The soils are in a regular repeating pattern of somewhat poorly drained Chewacla soils in lower lying areas and well drained or moderately well drained Congaree soils on natural levees adjacent to stream channels. Areas are mostly long and narrow and range from 500 to 1,200 acres. Slopes are 0 to 2 percent.

The somewhat poorly drained Chewacla soils make up about 45 percent of the map unit. Typically, the surface layer is brown loam about 10 inches thick. It is brown loam in the upper 6 inches and dark brown silt loam in the lower 4 inches. The subsoil extends to a depth of 50 inches. The upper part is yellowish brown silt loam; the middle part is light yellowish brown sandy clay loam that has strong brown and light brownish gray mottles; the lower part is mottled yellowish brown, light gray, and strong brown sandy clay loam. The underlying material is stratified, light gray and brownish yellow loamy sand and sandy loam to a depth of 65 inches or more.

Chewacla soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone is deep. The water table commonly is within 0.5 foot to 1.5 feet of the surface from November through May.

The well drained or moderately well drained Congaree soils make up about 40 percent of the map unit. Typically, the surface layer is reddish brown loam about 5 inches thick. The underlying layers to a depth of about 75 inches are mainly stratified, reddish brown loam, silty clay loam, and silt loam, and they have brownish mottles.

Congaree soils are low in natural fertility and organic

matter content. They are strongly acid to slightly acid in the upper part of the soil and strongly acid in the lower part. Permeability is moderate, and available water capacity is high. Tilth is good. The root zone is deep. The water table commonly is within 2.5 to 4 feet of the surface from November through April.

Included with these soils in mapping are small areas of Chastain soils. Also included are small areas of soils that have more sand throughout. The included soils make up less than 15 percent of the map unit.

These Chewacla and Congaree soils are only moderately suited to farming because they are commonly flooded during the planting season. They are well suited to pasture and row crops if the lower lying areas are drained, and if they are protected from flooding and properly managed.

Slash pine, loblolly pine, yellow-poplar, and sweetgum are well suited to these soils. Wetness and flooding limit the use of equipment in managing and harvesting the tree crop. However, operations can be successfully performed during the drier seasons. Drainage is needed in the lower lying areas to reduce seedling mortality.

These soils are poorly suited to most recreation uses, and they are severely limited for urban uses because of wetness and the hazard of flooding. These limitations can be overcome only by extensive flood control and drainage measures.

These soils are in capability subclass IIIw. Chewacla soils are in woodland suitability group 1w, and Congaree soils are in woodland suitability group 1o.

CnB—Cowarts-Nankin complex, 2 to 5 percent slopes. This complex consists of small areas of well drained Cowarts and Nankin soils that are so intermingled that they could not be separated at the scale selected for mapping. These very gently sloping soils are on irregularly shaped, undulating and convex ridgetops on uplands of the Southern Coastal Plain. Mapped areas are 5 to 75 acres.

The Cowarts soils make up about 45 percent of each mapped area. Typically, the surface layer is dark brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 28 inches. It is yellowish brown throughout, and the lower part has yellowish red and red mottles. The underlying material to a depth of 65 inches or more is mottled yellowish brown, light gray, red, and strong brown sandy clay loam that has pockets of sandier and more clayey material. A few nodules of ironstone are on the surface and within a depth of about 20 inches.

Cowarts soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the subsoil and moderately slow or slow below a depth of about 28 inches. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. Root penetration is somewhat restricted below a depth of 28 inches because the underlying layer is hard and firm.

The Nankin soils make up about 40 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand about 5 inches thick. The subsoil extends to a depth of 50 inches. The upper part is predominantly sandy clay, and the lower part is sandy clay loam. The subsoil is mainly strong brown throughout, and the lower part has reddish, brownish, and grayish mottles. The underlying material is mottled yellowish red, strong brown, light gray, and yellowish brown sandy clay loam to a depth of 65 inches or more.

Nankin soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. Root penetration is somewhat restricted below a depth of 50 inches because the underlying layer is hard and firm.

Included with these soils in mapping are small areas of Dothan and Susquehanna soils. Also included are areas of soils that are similar to the Cowarts and Nankin soils but have a clayey subsoil to a depth of 60 inches or more. These similar soils have balls of kaolin in the lower part of the subsoil. In places, kaolin crops out on the surface and is included in mapping. The included soils make up about 10 to 15 percent of the map unit.

This Cowarts-Nankin complex is only moderately suited to row crops, small grain, hay, and pasture. The soils are limited because of the irregular, undulating slopes and because of the hard, firm underlying material. Good tilth can be maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Slash pine and loblolly pine are well suited to these soils. There are no significant limitations for woodland use or management.

These soils are well suited to most urban and recreation uses. Moderately slow and slow permeability in the lower part of the soils is a limitation for septic tank absorption fields. Slope is a limitation for sewage lagoons and playgrounds.

The soils in this complex are in capability subclass IIe. Cowarts soils are in woodland suitability group 2o, and Nankin soils are in woodland suitability group 3o.

CnC2—Cowarts-Nankin complex, 5 to 12 percent slopes, eroded. This complex consists of small areas of well drained Cowarts and Nankin soils that are so intermingled that they could not be separated at the scale selected for mapping. These gently sloping and sloping soils are on hillsides on uplands adjacent to

drainageways of the Southern Coastal Plain. The hillsides are short and irregularly shaped. They commonly have rills or galled spots, shallow gullies, and an occasional deep gully. The surface layer is a mixture of the original surface layer and the upper part of the subsoil. Areas are 5 to 20 acres.

The Cowarts soils make up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsoil is predominantly strong brown sandy clay loam that extends to a depth of 28 inches. The underlying material to a depth of 65 inches or more is mottled strong brown, yellowish red, and light gray sandy clay loam that has pockets and strata of sandier and more clayey material.

Cowarts soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the soil and moderately slow or slow below a depth of about 28 inches. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. Root penetration is somewhat restricted below a depth of 28 inches because the underlying layer is hard and firm.

The Nankin soils make up about 40 percent of each mapped area. Typically, the surface layer is dark grayish brown sandy loam about 5 inches thick. The subsoil is predominantly strong brown sandy clay that extends to a depth of 53 inches. The underlying material is mottled yellowish red, yellowish brown, light gray, and pale brown sandy clay loam to a depth of 65 inches or more.

Nankin soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately slow, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. Root penetration is somewhat restricted below a depth of 53 inches because the underlying layer is hard and firm.

Included with this soil in mapping are small areas of Dothan, Vaucluse, and Susquehanna soils. Also included are areas of soils that are similar to the Cowarts and Nankin soils but have a clayey subsoil to a depth of 60 inches or more. Small areas that have outcrops of kaolin, and in a few places small areas that have a surface layer of sandy clay loam are also included. The included soils make up about 10 percent of the map unit.

This Cowarts-Nankin complex is poorly suited to row crops and small grain. The soils are limited because of the somewhat gullied, irregularly shaped slopes and the severe hazard of erosion. The soils are moderately suited to hay and pasture.

Slash pine and loblolly pine are well suited to this complex. There are no significant limitations for woodland use or management.

These soils are only moderately suited to most urban uses. Slope is a limitation if the soils are used for sewage lagoons, small commercial buildings, playgrounds, or picnic areas. Moderately slow and slow permeability in the lower part of the soils is a limitation for septic tank absorption fields.

The soils in this complex are in capability subclass IVe. Cowarts soils are in woodland suitability group 2o, and Nankin soils are in woodland suitability group 3o.

DoA—Dothan loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Southern Coastal Plain. Areas are 10 to 50 acres.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 65 inches or more. The upper and middle parts are yellowish brown; the lower part is yellowish brown and has yellowish red, red, and strong brown mottles. Content of plinthite ranges from 8 to 12 percent below a depth of about 34 inches. Nodules of ironstone are in the surface layer and in the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Fuquay and Tifton soils. The included soils make up 5 to 20 percent of the map unit.

This Dothan soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds to irrigation, and high yields can be obtained. Minimum tillage and the use of cover crops, including grasses and legumes in the cropping system, help to increase organic matter content.

Slash pine and loblolly pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Moderately slow permeability in the lower part of the subsoil limits the use of the soil for septic tank absorption fields. In most places, however, this limitation can be overcome by special design and installation. Moderately slow permeability in the lower part of the subsoil is also a limitation for sanitary landfills.

This soil is in capability class I and woodland suitability group 2o.

DoB—Dothan loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes commonly are smooth and convex. Areas are 10 to 70 acres.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is

predominantly sandy clay loam that extends to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and yellowish red mottles; the lower part is mottled yellowish brown, strong brown, red, and yellowish red. Plinthite is below a depth of 35 inches. A few nodules of ironstone are in the surface layer and in the upper part of the subsoil.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few areas of Cowarts, Fuquay, Nankin, and Tifton soils. The included soils make up 10 to 20 percent of the map unit.

This Dothan soil is well suited to row crops, small grain, pecan trees, hay, and pasture. During dry seasons this soil responds to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields. In most places, however, this limitation can be overcome by increasing the size of the absorption area or modifying the design.

This soil is in capability subclass IIe and woodland suitability group 2o.

DoC—Dothan loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes are irregularly shaped and convex. Areas are 5 to 20 acres.

Typically, the surface layer is dark grayish brown loamy sand about 5 inches thick. The subsoil is predominantly sandy clay loam and extends to a depth of 65 inches or more. The upper part is predominantly yellowish brown; the middle part is yellowish brown and has yellowish red and strong brown mottles; the lower part is mottled yellowish brown, strong brown, red, and light gray. Plinthite is below a depth of about 36 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. Available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few areas of Cowarts, Fuquay, Nankin, and Tifton soils. The included soils make up 10 to 15 percent of the map unit.

This Dothan soil is only moderately suited to row crops and small grain because of the smallness of the mapped areas and the irregularly shaped or complex slopes. It is well suited to hay and pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use and management.

This soil is well suited to most urban and recreation uses. Moderately slow permeability in the lower part of the subsoil limits the use of this soil for septic tank absorption fields, but in most places, this limitation can be overcome by increasing the size of the absorption area or modifying the design. Slope is a limitation for small commercial buildings.

This soil is in capability subclass IIIe and woodland suitability group 2o.

EuB—Eustis loamy sand, 2 to 6 percent slopes. This somewhat excessively drained, very gently sloping soil is mainly on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas range from 5 to 150 acres.

Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer is loamy sand that extends to a depth of 28 inches. The upper part is dark yellowish brown, and the lower part is brown. The subsoil is yellowish red loamy sand to a depth of 70 inches or more.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderately rapid or rapid, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are small areas of Lakeland, Lucy, and Red Bay soils. The included soils make up about 5 to 15 percent of the map unit.

This Eustis soil is only moderately suited to row crops, small grain, hay, and pasture because of low fertility and low available water capacity. Crop residue returned to the soil helps to overcome these limitations. Yields for the crops commonly grown can be increased if this soil is irrigated.

Loblolly pine and slash pine are only moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is moderately suited to most urban uses. The sandy texture is a limitation for recreation uses, and seepage is a limitation for most sanitary facilities. The pollution of shallow water supplies is a hazard.

This soil is in capability subclass IIIs and woodland suitability group 3s.

EuD—Eustis loamy sand, 6 to 12 percent slopes. This somewhat excessively drained, predominantly sloping soil is on uplands of the Southern Coastal Plain. It is on narrow ridgetops and short hillsides that are adjacent to drainageways. Slopes are mostly smooth and convex. Areas are 5 to 40 acres.

Typically, the surface layer is brown loamy sand about 4 inches thick. The subsurface layer is strong brown loamy sand that extends to a depth of 18 inches. The subsoil is yellowish red loamy sand to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter content. It is very strongly acid except for the surface layer in limed areas. Permeability is moderately rapid or rapid, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are small areas of Lakeland and Lucy soils. The included soils make up about 5 to 15 percent of the map unit.

This Eustis soil is poorly suited to farming because of the gradient of slope, low fertility, and low available water capacity.

Loblolly pine and slash pine are moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is moderately suited to most urban uses. The sandy texture is a limitation for many recreation uses. Seepage is a limitation for most sanitary facilities. Slope is a limitation for septic tank absorption fields, sewage lagoons, dwellings, small commercial buildings, and playgrounds.

This soil is in capability subclass VIs and woodland suitability group 3s.

FaB—Faceville sandy loam, 1 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes commonly are smooth and convex. Areas are 10 to 80 acres.

Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is predominantly red sandy clay to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil is mapping are a few intermingled areas of Greenville, Orangeburg, and Red Bay soils. Also included are a few small areas that have a surface layer of sandy clay loam. The included soils make up about 5 to 15 percent of the map unit.

This Faceville soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds to irrigation and high yields can be obtained (fig. 3). Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. The clayey subsoil is a limitation for a few uses, but this limitation can be overcome by good design and construction. Seepage is a limitation if the soil is used for water impoundments.

This soil is in capability subclass IIe and woodland suitability group 3o.

FaC2—Faceville sandy loam, 5 to 10 percent slopes, eroded. This well drained, gently sloping and sloping soil is on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. Slopes are convex and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 10 to 50 acres.

Typically, the surface layer is dark brown sandy loam 4 inches thick. The subsoil is dominantly sandy clay to a depth of 65 inches or more. The upper part is yellowish red, and the lower part is predominantly red.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Greenville and Orangeburg soils. Also included are a few small areas that have a surface layer of sandy clay loam. The included soils make up 10 to 20 percent of the map unit.

This Faceville soil is only moderately suited to row crops and small grain because of slope and the somewhat gullied landscape. This soil is well suited to hay and pasture. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Figure 3.—No-tillage and irrigation on Faceville sandy loam, 1 to 5 percent slopes. Good management is essential to obtain high crop yields on this prime farmland.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Gradient of slope and the clayey subsoil are limitations for some uses, but in most places these limitations can be overcome by good design and construction.

This soil is in capability subclass IIIe and woodland suitability group 3o.

FsB—Fuquay loamy sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas are 10 to 60 acres.

Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 23 inches. The subsoil is sandy clay loam to a depth of 70 inches or more. It is yellowish brown throughout and has yellowish red, pale brown, and light gray mottles in the lower part. Content of plinthite is 5 percent or more below a depth of about 52 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Ailey, Dothan, and Lakeland soils. The included soils make up 5 to 15 percent of the map unit.

This Fuquay soil is only moderately suited to row crops and small grain because of low available water capacity.

Returning crop residue to the soil helps to overcome this limitation. During dry seasons this soil responds to irrigation, and high yields can be obtained. This soil is well suited to hay and pasture (fig. 4).

Loblolly pine and slash pine are moderately suited to this soil. Seedling mortality is a management concern.

This soil is well suited to most urban uses. Slow permeability in the lower part of the subsoil somewhat limits the use of this soil for septic tank absorption fields, but in most places, this limitation can be overcome by special design and installation. The sandy surface layer is a limitation for most recreation uses.

This soil is in capability subclass IIs and woodland suitability group 3s.

FsC—Fuquay loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes commonly are smooth and convex. Areas are 5 to 25 acres.

Typically, the surface layer is grayish brown loamy sand about 6 inches thick. The subsurface layer is brown loamy sand that extends to a depth of about 22 inches. The subsoil is sandy clay loam to a depth of 60 inches or more. It is yellowish brown throughout and has yellowish red mottles in the lower part. Content of plinthite is 5 percent or more below a depth of 39 inches.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate in the upper part of the subsoil and slow in the lower part. Available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are small areas of Ailey and Lakeland soils. The included soils make up 5 to 15 percent of the map unit.

Figure 4.—Improved bermudagrass hay on Fuquay loamy sand, 0 to 5 percent slopes. This soil is well suited to hay and pasture.

This Fuquay soil is only moderately suited to row crops and small grain because of low available water capacity, gradient of slope, and small size of the mapped areas. Returning crop residue to the soil helps to increase the available water capacity. This soil is well suited to hay and pasture.

Loblolly pine and slash pine are moderately suited to this soil. Seedling mortality is a management concern.

This soil is well suited to most urban uses. Slow permeability in the lower part of the subsoil somewhat limits the use of this soil for septic tank absorption fields, but in most places, this limitation can be overcome by special design and installation. The sandy surface layer is a limitation for most recreation uses. Slope is a limitation for small commercial buildings.

This soil is in capability subclass IIIs and woodland suitability group 3s.

Gr—Grady loam. This poorly drained, nearly level soil is in saucer shaped depressional areas on uplands of the Southern Coastal Plain. It commonly is ponded during December through June. Slopes range from 0 to 2 percent. Areas are 5 to 15 acres.

Typically, the surface layer is black loam about 7 inches thick. The subsoil is predominantly clay to a depth of 65 inches or more. It is gray throughout and has strong brown and yellowish brown mottles in the middle and lower parts.

This soil is low in natural fertility and medium in organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is high. Tilth is fair. Because this soil commonly is saturated or ponded during winter and spring, the growth of plants is limited.

Included with this soil in mapping are small intermingled areas of Rains soils. The included soils make up 5 to 10 percent of the map unit.

This Grady soil is poorly suited to row crops and small grain because of ponding. It is moderately suited to hay and pasture. Baldcypress, blackgum, and water oak are common trees. Ponding is the main limitation to equipment use and to seedling survival for other than the common water-tolerant trees. However, if the soil is drained, equipment limitations are significantly reduced, and loblolly pine and slash pine are well suited.

This soil is poorly suited to urban and recreation uses. Wetness and ponding are limitations that are difficult to overcome.

This soil is in capability subclass Vw and woodland suitability group 4w.

GsB—Greenville sandy loam, 1 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas range from 10 to 125 acres.

Typically, the surface layer is dark reddish brown sandy loam about 6 inches thick. The subsoil extends to a depth of 70 inches or more. The upper 4 inches is dark reddish brown sandy clay loam; the rest is dark red sandy clay.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Faceville, Orangeburg, and Red Bay soils. Also included are a few small areas of a soil that has a surface layer of sandy clay loam. The included soils make up about 5 to 15 percent of the map unit.

This Greenville soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a slight to moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring on the more sloping part of the soil help to reduce runoff and control erosion.

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. The clayey subsoil is a limitation for trench type sanitary landfills, but this limitation can be overcome by design and good construction. This soil is well suited to recreation uses.

This soil is in capability subclass IIe and woodland suitability group 3o.

GsC2—Greenville sandy loam, 5 to 10 percent slopes, eroded. This well drained, gently sloping and sloping soil is predominantly on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface soil and the upper part of the subsoil and has been thinned by erosion. Slopes are convex and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 10 to 50 acres.

Typically, the surface layer is dark reddish brown sandy loam about 4 inches thick. The subsoil is dark red to a depth of 60 inches or more. The upper few inches is sandy clay loam; the rest is sandy clay.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Faceville, Orangeburg, and Red Bay soils. Also included are a few small areas of a soil

that has a surface layer of sandy clay loam. The included soils make up about 10 to 15 percent of the map unit.

This Greenville soil is only moderately suited to row crops and small grain because of slope and the somewhat gullied landscape. It is well suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban uses. Gradient of slope is a limitation for sewage lagoons and small commercial buildings. The clayey subsoil is a limitation for trench type sanitary landfills; however, this limitation can be overcome by design and good construction. Slope is a limitation for some recreation facilities.

This soil is in capability subclass IIIe and woodland suitability group 3o.

LaB—Lakeland sand, 0 to 8 percent slopes. This excessively drained, nearly level to gently sloping soil is on broad ridgetops and short hillsides predominantly on uplands of the Sand Hills. Slopes are smooth and convex in most places. Areas range from 10 to 250 acres.

Typically, the surface layer is very dark gray sand about 5 inches thick. The underlying layers are sand to a depth of 85 inches or more. The upper layer is yellowish brown, the middle layers are brownish yellow, and the lower layer is very pale brown.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Ailey, Fuquay, and Vaucluse soils. Also included are a few small areas of a soil that has a higher clay content between a depth of 70 and 80 inches than is common to Lakeland soils. The included soils make up 5 to 15 percent of the map unit.

This Lakeland soil is poorly suited to row crops, small grain, hay, and pasture because of low fertility and low available water capacity. Crop residue returned to the soil helps to overcome these limitations.

Loblolly pine, slash pine, and longleaf pine are moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is moderately suited to most urban uses. The soil is too sandy for most recreation uses. In addition, seepage is a limitation for most sanitary facilities and water impoundments.

This soil is in capability subclass IVs and woodland suitability group 4s.

LaD—Lakeland sand, 8 to 12 percent slopes. This excessively drained, sloping soil is mostly on narrow ridgetops and short hillsides predominantly on uplands of the Sand Hills. Slopes are irregularly shaped and convex. Areas are 10 to 50 acres.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The underlying layers are sand to a depth of 80 inches or more. The upper layers are yellowish brown, and the lower layer is very pale brown.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very rapid, and available water capacity is low. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of a soil that has a higher clay content between a depth of 70 and 80 inches than is common to Lakeland soils. Also included are a few intermingled areas of Ailey and Vaucluse soils. The included soils make up about 10 to 15 percent of the map unit.

This Lakeland soil is poorly suited to farming and to most urban uses. The sandy texture is a limitation for many recreation uses, and seepage is a limitation for most sanitary facilities and water impoundments. In addition, slope is a limitation for farming, septic tank absorption fields, sewage lagoons, and for dwellings, small commercial buildings, and playgrounds.

Loblolly pine, longleaf pine, and slash pine are moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is in capability subclass VIs and woodland suitability group 4s.

LmB—Lucy loamy sand, 0 to 5 percent slopes. This well drained, nearly level and very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas are 10 to 75 acres.

Typically, the surface layer is dark grayish brown loamy sand about 7 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 23 inches. The subsoil extends to a depth of 65 inches or more. The upper part is yellowish red sandy loam, and the lower part is red sandy clay loam.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Fuquay, Lakeland, and Orangeburg soils. The included soils make up about 5 to 15 percent of the map unit.

This Lucy soil is only moderately suited to row crops, small grain, hay, and pasture because of low available water capacity and low fertility. Returning crop residue to the soil helps to overcome these limitations. During dry seasons this soil responds to irrigation, and high yields can be obtained.

Loblolly pine and slash pine are moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is well suited to most urban uses. However, seepage is a limitation if the soil is used for sewage lagoons and water impoundments. The sandy surface layer is a limitation for many recreation uses.

This soil is in capability subclass IIs and woodland suitability group 3s.

LmC—Lucy loamy sand, 5 to 8 percent slopes. This well drained, gently sloping soil is mainly on hillsides on uplands of the Southern Coastal Plain. Slopes commonly are smooth and convex. Areas are 10 to 20 acres.

Typically, the surface layer is brown loamy sand about 6 inches thick. The subsurface layer is strong brown loamy sand and extends to a depth of 24 inches. The subsoil is dominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish red, and the lower part is red.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Lakeland and Orangeburg soils. The included soils make up about 5 to 15 percent of the map unit.

This Lucy soil is moderately suited to row crops, small grain, hay, and pasture. It is limited because of low available water capacity, low fertility, slope, and the small size of the mapped areas. The low available water capacity can be partly overcome by returning the crop residue to the soil.

Loblolly pine and slash pine are moderately suited to this soil. Equipment limitations and seedling mortality are management concerns.

This soil is moderately suited to most urban uses. Seepage is a limitation for sewage lagoons and water impoundments, and slope is a limitation for small commercial buildings. The sandy surface layer is a limitation for some recreation uses.

This soil is in capability subclass IIIs and woodland suitability group 3s.

MaB—Marlboro sandy loam, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas are 10 to 50 acres.

Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is sandy clay to a depth of 65 inches or more. It is yellowish brown throughout and has yellowish red and light gray mottles in the lower part.

The soil is low in natural fertility and organic matter content. It is medium acid to very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Dothan, Faceville, and Tifton soils. The included soils make up about 5 to 15 percent of the map unit.

This Marlboro soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion (fig. 5).

Loblolly pine and slash pine are moderately suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Slow permeability in the subsoil is a limitation for septic tank absorption fields. In most places, however, this limitation can be overcome by special design and installation. Seepage and gradient of slope are limitations if this soil is used for sewage lagoons.

This soil is in capability subclass IIe and woodland suitability group 3o.

Mn—Mascotte sand. This poorly drained, nearly level soil is on broad uplands of the Southern Coastal Plain. Slope is 0 to 2 percent. Areas are 10 to 60 acres.

Typically, the surface layer is very dark gray sand about 3 inches thick. The subsurface layer is gray sand that extends to a depth of 15 inches. This layer is underlain by an organically stained layer of weakly cemented dark brown sand that extends to a depth of 20 inches. Below this layer is pale brown sand to a depth of 36 inches. The underlying material to a depth of 65 inches or more is mainly gray sandy clay loam that has yellowish brown mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. This soil has a weakly cemented hardpan that restricts root penetration during dry seasons. A water table, which commonly is at a depth of

Figure 5.—Peanuts planted on Marlboro sandy loam, 2 to 5 percent slopes. Contouring helps to control erosion and reduce runoff on this prime farmland.

less than 1 foot from December through April, limits the growth of plants.

Included with this soil in mapping are small areas of Pelham, Ocilla, and Persanti soils. The included soils make up 5 to 10 percent of the map unit.

Most areas of this Mascotte soil are wooded. The soil is poorly suited to row crops, small grain, hay, and pasture because of wetness and low available water capacity. In addition, the weakly cemented layer restricts root penetration during dry seasons.

Loblolly pine and slash pine are moderately suited to this soil. Wetness is the main limitation to equipment use and seedling survival. This limitation can be overcome by installing open ditches. In addition, bedding of plants helps to overcome seedling mortality. Logging operations can be performed without difficulty during the drier months.

This soil is poorly suited to most urban and recreation uses because of wetness. In some places, however, satisfactory drainage can be obtained if the drainage system is properly designed and carefully installed.

This soil is in capability subclass IVw and woodland suitability group 3w.

Oc—Ochlockonee sandy loam. This well drained, nearly level soil is in draws and small depressional areas, and on narrow flood plains. It commonly is flooded for very brief periods from December through April. At other times, depth to the water table is 3 to 4 feet. Areas are 3 to 15 acres.

Typically, the surface layer is very dark grayish brown sandy loam about 4 inches thick. The underlying material is brown and dark yellowish brown sandy loam and loam to a depth of 60 inches and dark yellowish brown fine sandy loam to a depth of 65 inches or more.

This soil is medium in natural fertility and low in organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are small areas of a similar soil that has a loamy subsoil at a depth of about 20 inches. Also included are areas of Bibb and Rains soils. The included soils make up about 5 to 10 percent of the map unit.

This Ochlockonee soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation, and high yields can be obtained. Damage to irrigation equipment is a hazard during periods of flooding. In some areas grassed waterways are used to carry water from diversion and terrace outlets. Good tilth is easily maintained by returning crop residue to the soil.

Loblolly pine, slash pine, and yellow-poplar are well suited to this soil. There are no significant limitations for woodland use and management.

This soil is poorly suited to most recreation uses, and it is severely limited for urban uses because of brief flooding from December through April.

This soil is in capability subclass IIw and woodland suitability group 1o.

Od—Ocilla loamy sand. This somewhat poorly drained, nearly level soil is mostly on broad, slightly depressional areas on uplands of the Southern Coastal Plain. Slope is 0 to 2 percent. Areas are 5 to 50 acres.

Typically, the surface layer is very dark gray loamy sand about 7 inches thick. The subsurface layer is loamy sand that extends to a depth of 26 inches. It is light brownish gray in the upper part and pale brown in the lower part. The subsoil is dominantly sandy clay loam to a depth of 65 inches or more. The upper part is brownish yellow and has light brownish gray mottles; the middle part is brownish yellow and has light gray and yellowish brown mottles; the lower part is mottled yellowish brown, yellowish red, and light gray.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. Although the root zone is deep, a seasonal high water table, which commonly is at a depth of 1 foot to 2.5 feet from December through April, limits root penetration.

Included with this soil in mapping are small areas of Ardilla, Pelham, and Rains soils. The included soils make up 5 to 10 percent of the map unit.

This Ocilla soil is only moderately suited to row crops and small grain because of wetness. If the soil is drained, however, it is productive for locally grown crops. This soil is well suited to hay and pasture.

Loblolly pine and slash pine are moderately suited to this soil. Wetness is the main limitation to equipment use in managing and harvesting the tree crop. However, operations can be successfully performed during the drier seasons. Drainage is needed to overcome seedling mortality.

This soil is poorly suited to most urban uses because of wetness. Wetness is also a concern for most recreation uses.

This soil is in capability subclass IIIw and woodland suitability group 3w.

OrA—Orangeburg loamy sand, 0 to 2 percent slopes. This well drained, nearly level soil is on ridgetops on uplands of the Southern Coastal Plain. Areas are 10 to 70 acres.

Typically, the surface layer is dark grayish brown loamy sand about 8 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, the middle part is yellowish red, and the lower part is red.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Lucy soils. Also included are areas of soils that are similar to the Orangeburg soils but have a dark reddish brown surface layer and areas of soils that have a higher content of clay in the lower part of the subsoil. The included soils make up 5 to 15 percent of the map unit.

This Orangeburg soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation and high yields can be obtained. Erosion is a slight hazard. Good tilth is easily maintained by returning crop residue to the soil. Minimum tillage and the use of cover crops, including grasses and legumes in the cropping system, help to increase the organic matter content.

Loblolly pine and slash pine are well suited to this soil (fig. 6). There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Seepage is a limitation if the soil is used for sewage lagoons or water impoundments.

This soil is in capability class I and woodland suitability group 2o.

OrB—Orangeburg loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slopes commonly are smooth, undulating, and convex. Areas range from 10 to 130 acres.

Typically, the surface layer is brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam and extends to a depth of 65 inches or more. The upper 4 inches is strong brown, and the rest is predominantly red.

The soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

Figure 6.—Loblolly pine planted on Orangeburg loamy sand, 0 to 2 percent slopes. This soil is well suited to the common wood crops.

Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Lucy soils. Also included are soils that are similar to this Orangeburg soil but have a dark reddish brown surface layer. The included soils make up 5 to 10 percent of the map unit.

This Orangeburg soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Seepage is the chief limitation if this soil is used for sewage lagoons or water impoundments.

This soil is in capability subclass IIe and woodland suitability group 2o.

OrE—Orangeburg loamy sand, 12 to 17 percent slopes. This well drained, moderately steep soil is on hillsides on uplands of the Southern Coastal Plain. Slopes are irregularly shaped and short and are generally parallel to the well defined drainage systems. Areas range from 10 to 100 acres.

Typically, the surface layer is brown loamy sand about 5 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, and the lower part is red. The lower part has a few yellowish brown mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of soils that are similar to the Orangeburg soil but have a clayey subsoil and some areas of soils that have a thick sandy surface layer. Also included are a few small areas of a soil that have a surface layer of sandy clay loam. A few shallow gullies are in some places. The included soils make up 10 to 20 percent of the map unit.

This Orangeburg soil is wooded. Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is poorly suited to cultivated crops and moderately suited to hay and pasture. Gradient of the irregularly shaped, short slopes is a limitation. Gullying is a severe concern unless the soil is protected from erosion.

This soil is only moderately suited to most urban and recreation uses because of the gradient of the slope.

This soil is in capability subclass VIe and woodland suitability group 2o.

OsC2—Orangeburg sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. Slopes are convex and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 5 to 50 acres.

Typically, the surface layer is dark brown sandy loam about 5 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish red, and the lower part is red.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Faceville and Lucy soils. Also included are a few small areas of a soil that have a surface layer of sandy clay loam. The included soils make up 5 to 15 percent of the map unit.

This Orangeburg soil is only moderately suited to row crops and small grain because of slope and the somewhat gullied landscape. The soil is well suited to hay and pasture. Good tilth can be maintained in most places by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes, in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Slash pine and loblolly pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Slope and seepage are limitations if this soil is used for sewage lagoons or water impoundments.

This soil is in capability subclass IIIe and woodland suitability group 2o.

OsD2—Orangeburg sandy loam, 8 to 12 percent slopes, eroded. This well drained, sloping soil is on hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of the original surface soil and the upper part of the subsoil. Slopes are short and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 5 to 60 acres.

Typically, the surface layer is brown sandy loam about 5 inches thick. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is strong brown, the middle part is yellowish red, and the lower part is red.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. This soil is in good tilth. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Cowarts, Faceville, Greenville, and Nankin soils. Also included are a few small areas of a soil that has a surface layer of sandy clay loam. At the lower part of some slopes, the subsoil extends to a depth of less than 60 inches. The included soils make up 10 to 20 percent of the map unit.

This Orangeburg soil is only moderately suited to row crops, hay, and pasture because of slope and the somewhat gullied landscape. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage and the use of cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is moderately suited to most urban and recreation uses. Gullies are a concern, but the landscape can easily be smoothed or modified for most urban uses. Slope is the main limitation for most uses.

This soil is in capability subclass IVe and woodland suitability group 2o.

Pe—Pelham loamy sand. This poorly drained, nearly level soil is on broad uplands and near drainageways of the Southern Coastal Plain. It is flooded for brief periods from December through March. Slope is 0 to 2 percent. Areas are 10 to 80 acres.

Typically, the surface layer is very dark gray loamy sand about 7 inches thick. The subsurface layer is gray loamy sand and extends to a depth of 28 inches. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. It is predominantly light gray and has brownish yellow mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is low. Tilth is good. The root zone is deep, but the seasonal high water table, which commonly is at a depth of 0.5 foot to 1.5 feet from January through April, limits root penetration of plants that are not water-tolerant.

Included with this soil in mapping are a few small areas of Mascotte, Ocilla, and Rains soils. The included soils make up 10 to 20 percent of the map unit.

This Pelham soil is wooded. Slash pine and loblolly pine are well suited to this soil. Wetness is the main limitation to equipment use in managing and harvesting the tree crop. However, operations can be successfully performed during the drier seasons. Drainage is needed to overcome the high seedling mortality.

This soil is poorly suited to farming and to most urban and recreation uses because of wetness and the hazard of flooding. In places, satisfactory drainage can be obtained if the drainage system is properly designed and carefully installed.

This soil is in capability subclass Vw and woodland suitability group 2w.

Ps—Persanti fine sandy loam. This moderately well drained, nearly level soil is on terraces near the larger streams of the Southern Coastal Plain. Slope is 0 to 2 percent. Areas range from 20 to 175 acres.

Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is pale brown fine sandy loam that extends to a depth of 15 inches. The subsoil is clay to a depth of 65 inches or more. The upper part is light yellowish brown and has

strong brown mottles; the middle part is mottled strong brown, yellowish red, red, and light gray; the lower part is light gray and has strong brown, yellowish red, and pale olive mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. The seasonal high water table, which is within 1 foot of the surface from December through April, limits root penetration of plants that are not water-tolerant.

Included with this soil in mapping are small areas of Ardilla and Ocilla soils. The included soils make up about 10 to 15 percent of the map unit.

This Persanti soil is only moderately suited to cultivated crops, small grain, and pasture because of wetness and the hazard of flooding. If the soil is drained, protected against flooding, and properly managed, good yields can be obtained.

Slash pine, loblolly pine, sweetgum, and yellow-poplar are well suited to this soil. Because of wetness and flooding, the use of equipment is limited, and seedling mortality is high. In places drainage is needed. Logging during the drier seasons helps in harvesting the tree crop.

This soil is poorly suited to most urban and recreation uses. Wetness and flooding are the main limitations, but these limitations can be overcome by flood control measures and drainage.

This soil is in capability subclass IIw and woodland suitability group 2w.

Ra—Rains sandy loam. This poorly drained, nearly level soil is in slight depressional areas and on flats on uplands of the Southern Coastal Plain. Slopes is 0 to 2 percent. Areas are 10 to 30 acres.

Typically, the surface layer is very dark gray sandy loam about 4 inches thick. The subsurface layer is dark gray sandy loam about 5 inches thick. The subsoil is sandy clay loam to a depth of 65 inches or more. It is gray and has yellowish brown and red mottles.

This soil is low in natural fertility and organic matter content. It is very strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good. Although the root zone is deep, root penetration is somewhat limited by a seasonal high water table that is commonly within 1 foot of the surface from November through April.

Included with this soil in mapping are small areas of Bibb and Pelham soils. The included soils make up 5 to 15 percent of the map unit.

Most areas of this Rains soil are wooded. Some areas, however, are used for cultivated crops and pasture. Wetness and flooding are limitations.

Loblolly pine and slash pine are well suited to this soil. Wetness is a limitation to equipment use in managing and harvesting the wood crop. However, logging can be done successfully during the drier seasons. Drainage is needed to overcome seedling mortality.

This soil is poorly suited to urban and recreation uses because of wetness. In places, satisfactory drainage can be obtained if the drainage system is properly designed and carefully installed.

This soil is in capability subclass IVw and woodland suitability group 2w.

ReB—Red Bay loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on broad ridgetops on uplands of the Southern Coastal Plain. Slopes are smooth and convex. Areas are 10 to 30 acres.

Typically, the surface layer is dark reddish brown loamy sand about 6 inches thick. The subsoil extends to a depth of 75 inches or more. The upper 4 inches is dark reddish brown sandy loam, and the rest is dark red sandy clay loam.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Eustis, Greenville, and Orangeburg soils. The included soils make up 5 to 15 percent of the map unit.

This Red Bay soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Seepage is a limitation if the soil is used for sewage lagoons or water impoundments.

This soil is in capability subclass IIe and woodland suitability group 2o.

ReC2—Red Bay sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on short hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of remnants of the original surface soil and the upper part of the subsoil. Slopes are convex and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 10 to 20 acres.

Typically, the surface layer is dark reddish brown sandy loam about 4 inches thick. The subsoil is

predominantly dark red sandy clay loam to a depth of 65 inches or more.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few intermingled areas of Eustis, Greenville, and Orangeburg soils. Also included are a few small areas of soils that have a surface layer of sandy clay loam. The included soils make up 5 to 20 percent of the map unit.

This Red Bay soil is only moderately suited to row crops and small grain because of slope and the somewhat gullied landscape. The soil is well suited to hay and pasture. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Slope is a limitation for small commercial buildings and playgrounds. Seepage is a limitation if this soil is used for sewage lagoons or water impoundments.

This soil is in capability subclass IIIe and woodland suitability group 2o.

SuB—Susquehanna sandy loam, 2 to 5 percent slopes. This somewhat poorly drained, very gently sloping soil is on ridgetops and hillsides on uplands of the Southern Coastal Plain. The landscape is undulating, and slopes are convex. Areas are 5 to 30 acres.

Typically, the surface layer is dark grayish brown sandy loam about 3 inches thick. The subsoil is predominantly clay to a depth of 65 inches or more. The upper part is yellowish red and has red and light brownish gray mottles, the middle part is gray and has red and yellowish red mottles, and the lower part is light gray and has strong brown and red mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very slow, and available water capacity is medium. Tilth is fair. The root zone is somewhat restricted by the firm and clayey subsoil.

Included with this soil in mapping are areas of Cowarts, Dothan, and Nankin soils. Also included are areas of a soil that is similar to the Susquehanna soils but is underlain by gray sandstone and a few areas of a soil that has less clay in the lower part of the subsoil. The included soils make up about 10 to 20 percent of the map unit.

This Susquehanna soil is poorly suited to row crops and small grain. It is limited because of the sticky, clayey subsoil and the severe erosion hazard. This soil is moderately suited to hay and pasture.

Loblolly pine and shortleaf pine are moderately suited to this soil. Equipment limitations are a management concern in wet seasons.

This soil is poorly suited to most urban uses. Very slow permeability in the subsoil limits the use of this soil for septic tank absorption fields. The shrink-swell potential needs to be considered if community development is planned. Recreation uses are limited because of slow permeability and wetness.

This soil is in capability subclass IVe and woodland suitability group 3c.

SuD—Susquehanna sandy loam, 5 to 12 percent slopes. This somewhat poorly drained, gently sloping and sloping soil is on short hillsides on uplands of the Southern Coastal Plain. Slopes are irregularly shaped and short. Areas are 5 to 90 acres.

Typically, the surface layer is dark gray sandy loam about 3 inches thick. The subsurface layer is dark grayish brown sandy loam and extends to a depth of 6 inches. The subsoil is clay to a depth of 65 inches or more. The upper part is predominantly red and has light brownish gray mottles, the middle part is light brownish gray and has strong brown and red mottles, and the lower part is light gray and has yellowish brown and pale brown mottles.

This soil is low in natural fertility and organic matter content. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is very slow, and available water capacity is medium. Tilth is fair. The root zone is somewhat restricted by the firm and clayey subsoil.

Included with this soil in mapping are areas of Cowarts, Nankin, and Vaucluse soils. Also included are a few areas of soils that are similar to the Susquehanna soils but have less clay in the lower part of the subsoil. In a few areas gray sandstone boulders crop out. The included soils make up about 10 to 20 percent of the map unit.

This Susquehanna soil is poorly suited to row crops, small grain, hay, and pasture. It is limited because of the severe erosion hazard and the very slow permeability of the subsoil.

Loblolly pine and shortleaf pine are moderately suited to this soil. Equipment limitations are a management concern in wet seasons.

This soil is poorly suited to most urban uses. Very slow permeability in the subsoil limits the use of this soil for septic tank absorption fields. Recreation uses are limited because of the clayey subsoil and wetness. The shrink-swell potential needs to be considered if community development is planned.

This soil is in capability subclass VIe and woodland suitability group 3c.

TfB—Tifton loamy sand, 2 to 5 percent slopes. This well drained, very gently sloping soil is on ridgetops on uplands of the Southern Coastal Plain. Slopes commonly are smooth and convex. Areas range from 10 to 175 acres.

Typically, the surface layer is dark grayish brown loamy sand about 6 inches thick. The subsoil is predominantly sandy clay loam that extends to a depth of 65 inches or more. The upper few inches is yellowish brown, the middle part is strong brown, and the lower part is strong brown and has red and light gray mottles. Plinthite is below a depth of about 32 inches. Nodules of ironstone are in the surface layer and in the upper and middle parts of the subsoil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Dothan, Fuquay, and Marlboro soils. Also included are a few acres of a soil that is similar to the Tifton soil but is shallower to plinthite. The included soils make up about 10 to 20 percent of the map unit.

This Tifton soil is well suited to row crops, small grain, hay, and pasture. During dry seasons this soil responds well to irrigation, and high yields can be obtained. Good tilth is easily maintained by returning crop residue to the soil. Erosion is a moderate hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban and recreation uses. Moderate permeability in the subsoil is a limitation for septic tank absorption fields, but this limitation can be overcome in most places by increasing the size of the absorption area or modifying the design. Slope and seepage are limitations if this soil is used for sewage lagoons.

This soil is in capability subclass IIe and woodland suitability group 2o.

TsC2—Tifton sandy loam, 5 to 8 percent slopes, eroded. This well drained, gently sloping soil is on short hillsides on uplands of the Southern Coastal Plain. The surface layer is a mixture of remnants of the original surface soil and the upper part of the subsoil. Slopes are irregularly shaped and convex and commonly have rills, galled spots, shallow gullies, and an occasional deep gully. Areas are 5 to 20 acres.

Typically, the surface layer is brown sandy loam about 4 inches thick. The subsoil is dominantly sandy clay loam to a depth of 65 inches or more. It is strong brown throughout and has red mottles in the middle part and red, yellowish brown, and light gray mottles in the lower part. Plinthite is below a depth of about 47 inches. Nodules of ironstone are throughout the soil.

This soil is low in natural fertility and organic matter content. It is very strongly acid or strongly acid throughout except for the surface layer in limed areas. Permeability is moderate, and available water capacity is medium. Tilth is good, and the soil can be worked throughout a wide range of moisture content. The root zone is deep and is easily penetrated by roots.

Included with this soil in mapping are a few small areas of Dothan soils. Also included are a few small areas of a soil that is similar to the Tifton soils but has a sandy clay loam surface layer. The included soils make up about 10 to 20 percent of the map unit.

This Tifton soil is only moderately suited to row crops and small grain because of slope and the somewhat gullied landscape. The soil is well suited to hay and pasture. Good tilth can be maintained by returning crop residue to the soil. Erosion is a severe hazard if cultivated crops are grown. Minimum tillage; the use of cover crops, including grasses and legumes in the cropping system; and terracing and contouring help to reduce runoff and control erosion.

Loblolly pine and slash pine are well suited to this soil. There are no significant limitations for woodland use or management.

This soil is well suited to most urban uses. Moderate permeability in the subsoil is a limitation to use of this soil for septic tank absorption fields. Slope and seepage are limitations for sewage lagoons. Slope is a limitation for small commercial buildings.

This soil is in capability subclass IIIe and woodland suitability group 2o.

Up—Udorthents-Pits complex. This map unit consists of areas of disturbed soil material and Pits that are so intermingled that they could not be separated at the scale selected for mapping. The soil material is piled in high mounds or is leveled and smoothed. The Pits are deep and were formed by removing soil material that overlay deposits of kaolin (fig. 7). This complex is at the contact between the Sand Hills and the Southern Coastal Plain. Slope is 5 to 17 percent. Most mapped areas range from 5 to 600 acres.

Udorthents make up about 75 percent of each mapped area. Typically, the soil material is yellowish brown, strong brown, red, light gray, and white. It is generally in strata that are variable, ranging from sandy or loamy to clayey. These strata are low in natural fertility and organic matter content. They are strongly acid or very strongly acid.

Pits make up about 25 percent of each mapped area. Typically, the Pits are about 15 to 75 feet deep and range from 5 to 125 acres. Some Pits are as much as 70 acres and contain water.

Udorthents on the smoothed, leveled, and adequately

Figure 7.—An area that was mined for kaolin in the Udorthents-Pits complex. The spoil area has been smoothed and permanent vegetation established. The pit has been stocked with fish.

prepared areas respond well to grasses and legumes if lime and fertilizer are applied. Commonly, rye is planted on the smoothed and shaped areas in the fall and winter to provide residue that will help to control erosion and conserve moisture during the establishment of perennial vegetation. Some of the smoothed areas have been established in pasture. Other small isolated areas are used for cultivated crops. Some areas have revegetated to woodland naturally. Other areas have been planted to loblolly pine.

The Pits commonly are nearly barren. Those that contain water have been stocked with fish.

This complex is not assigned to a capability unit or woodland suitability group.

VaC—Vaucluse and Ailey loamy sands, 2 to 8 percent slopes. This map unit consists of intermingled, well drained Vaucluse and Ailey soils. These soils are without consistent pattern from one area to another. They could be separated at the scale selected for mapping, but because of present and predicted use, they were mapped as one unit. These soils are very gently sloping and gently sloping. They are on ridgetops and hillsides on uplands of the Sand Hills and the Southern Coastal Plain. Areas are 10 to 70 acres.

The Vaucluse soils make up about 55 percent of the map unit. Typically, the surface layer is brown loamy sand about 6 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 11 inches. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish red; the lower part is yellowish red and has yellowish brown, brownish yellow, and light gray mottles. The subsoil is firm and brittle in the lower part.

Vaucluse soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Tilth is good. Root penetration is limited because of the brittle compact layer in the subsoil.

The Ailey soils make up about 30 percent of the map unit. Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 22 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and red mottles; the lower part is mottled yellowish brown, red, and light gray. The subsoil is firm, brittle, and slightly cemented at a depth of 38 to 70 inches or more.

Ailey soils are low in natural ferility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is rapid in the sandy surface layer and slow in the cemented and brittle layer. Available water capacity is low. Tilth is good. Root penetration is restricted by the cemented layer in the subsoil.

Included with these soils in mapping are a few small areas of Cowarts, Lakeland, and Nankin soils. Also included are a few small areas of a soil that has a surface layer of sandy loam. The included soils make up 15 percent of the map unit.

These Vaucluse and Ailey soils are poorly suited to row crops and small grain because of the firm, cemented or compact layer in the subsoil. However, they are moderately suited to hay and pasture. Erosion is a moderate hazard on most areas of this map unit if cultivated crops are grown. Grasses and legumes in the cropping system help to increase the available water capacity and maintain the organic matter content of the soil. Minimum tillage and cover crops, including grasses and legumes in the cropping system, help to reduce runoff and control erosion.

Slash pine, loblolly pine, and longleaf pine are moderately suited to these soils. There are no significant limitations for woodland use and management. However, equipment limitations and seedling mortality are management concerns on the Ailey parts of this map unit.

These soils are well suited to most urban uses. Slow permeability in the firm, cemented part of the subsoils is a limitation for septic tank absorption fields. Slope is a limitation if these soils are used for sewage lagoons. In some places the sandy surface layer is a limitation for most recreation uses.

These soils are in capability subclass IVe. Vaucluse soils are in woodland suitability group 3o, and Ailey soils are in woodland suitability group 4s.

VaD—Vaucluse and Ailey loamy sands, 8 to 17 percent slopes. This map unit consists of intermingled, well drained Vaucluse and Ailey soils. These soils are without consistent pattern from one area to the other. They could be separated at the scale selected for mapping, but because of present and predicted use, they were mapped as one unit. These soils are sloping and moderately steep. They are on hillsides predominantly on uplands of the Sand Hills. Vaucluse soils are mostly on the moderately steep hillsides adjacent to drainageways, and Ailey soils are commonly on the less sloping and higher lying parts of the hillsides. Areas are 20 to 80 acres.

The Vaucluse soils make up about 50 percent of each mapped area. Typically, the surface layer is dark grayish brown loamy sand about 4 inches thick. The subsurface layer is yellowish brown loamy sand and extends to a depth of 10 inches. The subsoil is predominantly sandy clay loam to a depth of 65 inches or more. The upper part is yellowish brown; the middle part is yellowish red or red and has yellowish brown, strong brown, and light gray mottles; the lower part is mottled red, strong brown, light gray, and yellowish brown. The subsoil is firm and brittle in the lower part.

Vaucluse soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is slow, and available water capacity is medium. Tilth is good. Root penetration is limited because of the brittle layer in the subsoil.

The Ailey soils make up about 30 percent of each mapped area. Typically, the surface layer is grayish brown loamy sand about 5 inches thick. The subsurface layer is light yellowish brown loamy sand and extends to a depth of 22 inches. The subsoil is predominantly sandy clay loam to a depth of 70 inches or more. The upper part is yellowish brown; the middle part is yellowish brown and has strong brown and red mottles; the lower part is mottled yellowish brown, red, and light gray. The subsoil is firm, brittle, and slightly cemented at a depth of 38 to 70 inches or more.

Ailey soils are low in natural fertility and organic matter content. They are strongly acid or very strongly acid throughout except for the surface layer in limed areas. Permeability is rapid in the sandy surface layer and slow in the cemented and brittle layer. Available water capacity is low. Tilth is good. Root penetration is restricted by a cemented layer in the subsoil.

Included with these soils in mapping are a few small areas of Cowarts, Lakeland, and Nankin soils. Also included are a few small areas of soils that are similar to the Vaucluse and Ailey soils but are eroded and have a surface layer of sandy clay loam. These eroded soils commonly have kaolin at a depth of a few feet or a sandy clay subsoil. The included soils make up 15 percent of the map unit.

These Vaucluse and Ailey soils are mostly wooded. Slash pine, loblolly pine, and longleaf pine are moderately suited to these soils. There are no significant limitations for woodland use and management. However,

equipment limitations and seedling mortality are management concerns on the Ailey parts of this map unit.

These soils are poorly suited to row crops and small grain because of slope and the firm, cemented layer in the subsoil. However, the soils are moderately suited to hay and pasture.

These soils are moderately suited to most urban uses. Slope is a limitation for sanitary facilities, community development, and playgrounds. Slow permeability in the firm, cemented part of the subsoil is a limitation for septic tank absorption fields. In some places the sandy surface layer is a limitation for most recreation uses.

These soils are in capability subclass VIe. Vaucluse soils are in woodland suitability group 3o, and Ailey soils are in woodland suitability group 4s.

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and suitabilites of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the suitability and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

James E. Helm, conservation agronomist, Soil Conservation Service, assisted in preparing this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

Soil erosion is the major concern on about 62 percent of the soils in Washington and Wilkinson Counties. If slope is more than 2 percent, erosion is a hazard. The Cowarts-Nankin complex, and the Dothan, Faceville, Greenville, Orangeburg, Red Bay, and Tifton soils, for example, have slopes of predominantly 2 to 8 percent.

Loss of the surface layer through erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Faceville and Greenville soils, and on soils that have a layer in or below the subsoil that limits the depth of the root zone. Such layers include a fragipan, as in Vaucluse soils. Second, soil erosion on farmland results in sedimentation of streams. Control of erosion minimizes the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, and for fish and wildlife.

In many sloping fields, tilling or preparing a good seedbed is difficult on clayey spots because the original friable surface soil has been eroded away. Such spots are common in areas of moderately eroded Faceville and Greenville soils.

Erosion control practices provide protective surface cover, control runoff, and increase infiltration. A cropping system that keeps plant cover on the soil for extended periods can hold soil erosion losses to amounts that will maintain the productive capacity. On livestock farms, which require pasture and hay, the grass forage crops in the cropping system reduce erosion on sloping land and improve soil tilth for the following crop.

In most areas of soils where slope is more than 8 percent, contour tillage or terracing is not practical because the slopes are too short and irregular. On these hillsides, a cropping system that provides substantial plant cover is required to control erosion, unless minimum tillage is practiced. Minimizing tillage and leaving crop residue on the surface help increase infiltration and reduce the hazards of runoff and erosion.

These practices can be adapted to most soils in the survey area, but they are more difficult to use successfully on soils such as eroded Cowarts-Nankin complex, Faceville, Greenville, Orangeburg, Red Bay, and Tifton soils. No-tillage for corn and soybeans is common and is increasing every year. It is effective in reducing erosion on sloping land and can be adapted to most soils in the survey area.

Terraces and diversions reduce the length of slope and control runoff and erosion. They are most practical on the well drained, very gently sloping soils on ridgetops and gently sloping soils on hillsides. Other soils in the survey area are less suitable for terraces and diversions because of sloping and moderately steep slopes.

Contouring is a widespread erosion control practice in the survey area. It is best adapted to soils that are very gently sloping and gently sloping, such as Cowarts-Nankin complex, and Dothan, Faceville, Greenville, Marlboro, Orangeburg, Red Bay, and Tifton soils.

Information for the design of erosion control practices for each kind of soil is contained in the Technical Guide, available in local offices of the Soil Conservation Service.

Soil drainage is the major management need on about 18 percent of the acreage in the survey area. The poorly drained Bibb and Kinston, Chastain, Grady, Mascotte, Pelham, and Rains soils are so wet that the production of crops common to the area is generally not possible. These soils make up about 94,000 acres. The somewhat poorly drained Ardilla, Chewacla, and Ocilla soils and the moderately well drained Persanti soils are so wet that crops are damaged during most years unless they are artificially drained. These soils make up about 27,000 acres. Although the Persanti soils are moderately well drained, they need artificial drainage in most years. Small areas of wetter soils along drainageways and in swales commonly are included in the areas of well drained to excessively drained soils, especially those soils that have slopes of 2 to 8 percent. However, artificial drainage is needed in some of these wetter areas.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface drainage and tile drainage is needed in most areas of the poorly drained soils that could be used for intensive row cropping. Drains need to be more closely spaced in slowly permeable soils than in more permeable soils. Tile drainage is very slow in Chewacla-Chastain and Grady soils. Finding adequate outlets for tile drainage systems is difficult in many areas of Grady, Pelham, and Rains soils.

Soil fertility is naturally low in most of the soils on uplands, but these soils respond well to fertilization and other good management practices. All of these soils are acid. The Bibb and Kinston, Chewacla, Chastain, and Congaree soils on flood plains are naturally higher in plant nutrients than most soils on uplands. They range from slightly acid to very strongly acid.

Many soils on uplands are very strongly acid in their natural state. If they have never been limed, applications of ground limestone are required to raise the pH level sufficiently for good growth of most legumes and other crops that require nearly neutral soils. Available phosphorus and potash levels are naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the need of the crop, and on the desired yield. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils with good tilth are granular and porous.

Most of the soils used for crops in the survey area have a surface layer of loamy sand or sandy loam that is light in color and low in organic matter content. These soils generally have weak structure. Regular additions of crop residue, manure, and other organic material help to improve or maintain soil tilth.

Fall plowing is generally not a good practice because most of the cropland consists of sloping soils that are subject to damaging erosion if they are plowed in the fall.

Field crops suited to the soils and climate of the survey area include some crops that are not now commonly grown. Cotton, sunflowers, and similar crops can be grown if economic conditions are favorable. Wheat, rye, and oats are the common close growing crops.

Special crops grown commercially in the survey area are vegetables, tree fruits, and nursery plants. A small acreage throughout the survey area is used for melons, sweet corn, tomatoes, and other vegetables and small fruits. Larger areas can be adapted to special crops, such as blueberries, grapes, and many different vegetables. Peaches (fig. 8) are the most important fruit crop, and pecans are an important nut crop.

Soils that have good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. In the survey area the Dothan, Faceville, Greenville, Marlboro, Orangeburg, Red Bay, and Tifton soils are well suited. These soils have slopes of about 8 percent and make up about 322,000 acres. If irrigated, about 110,000 acres of Ailey, Eustis, Fuquay, Lakeland, and Lucy soils that have slopes of less than 8 percent are also well suited to vegetables and small fruits. Crops generally can be planted and harvested earlier on these soils than on other soils in the survey area.

Most of the well drained soils are suitable for orchards and nursery plants. Soils in low positions where frost is frequent and air drainage is poor, however, generally are poorly suited to early vegetables, small fruits, and orchards.

Latest information and suggestions for growing special crops can be obtained from local offices of the

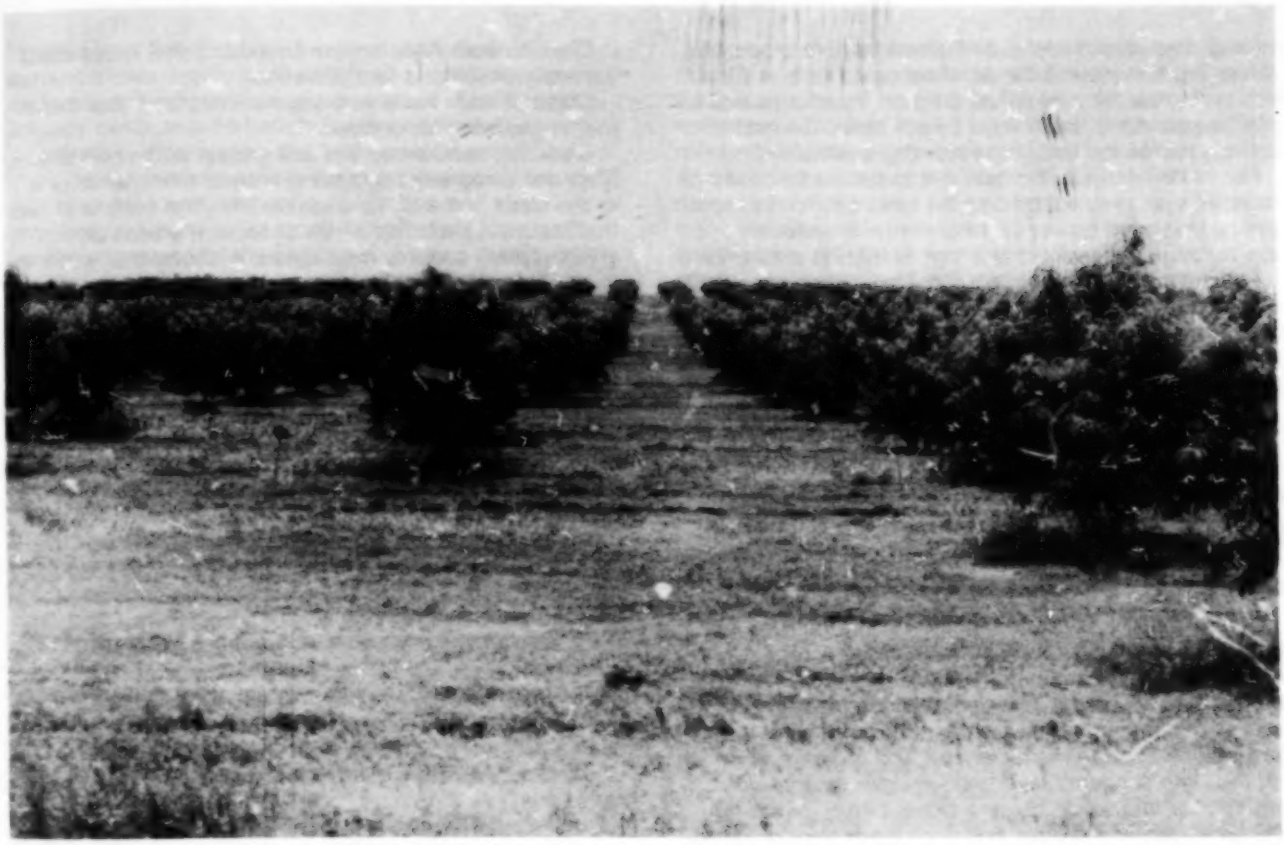


Figure 8.—Peach orchard on Faceville sandy loam, 1 to 5 percent slopes. This soil is prime farmland, and it is well suited to the commonly grown fruit crops.

Cooperative Extension Service and the Soil Conservation Service.

Farming is competing with other land uses for large areas in Washington and Wilkinson Counties. In general, the soils that are well suited to crops are also well suited to urban development. Ardilla soils, however, are well suited to farming but are poorly suited to nonfarm uses. Ailey, Eustis, Fuquay, and Lucy soils, on the other hand, are not so well suited to farming, but are generally well suited to most nonfarm uses. The data about specific soils in this soil survey can be used in planning future land use patterns.

About 351,495 acres in Washington and Wilkinson Counties is prime farmland. It is the land best suited to the production of food, feed, forage, fiber, and oilseed crops. The Cowarts, Dothan, Faceville, Greenville, Marlboro, Nankin, Ochlockonee, Orangeburg, Persanti, Red Bay, and Tifton soils that commonly have slopes of less than 8 percent are the prime farmland soils. These soils should be given careful consideration when planning land use. Alternative uses need to be developed that will not preclude later use of these soils for farming.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop

residue, barnyard manure, and green-manure crops; and harvesting that insures the smallest possible loss. The fertilizer needs for a specified crop on a particular soil can be accurately determined by soil tests. General fertilizer needs for field crops are also available (*3*).

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped as capability class and subclass. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, or s,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is droughty.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclass indicated by *w* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 or IIIe-6.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

Virgin forest orginally covered 97 percent of the soils in Washington and Wilkinson Counties. At present, according to the United States Department of Agriculture Forest Resource Bulletin SE-22, June 1972, about 70 percent of Washington County and 83 percent of Wilkinson County are commercial woodland.

Loblolly-shortleaf pine is the main commercial forest type in these counties. This type and the longleaf-slash pine type make up almost 45 percent of the commercial woodland in Washington County and 29 percent in Wilkinson County. More than 50 percent of the commercial woodland in both counties is oak-pine, oak-hickory, and oak-gum-cypress forest types.

Soils on ridgetops and hillsides, such as Ailey, Eustis, Lakeland, and Orangeburg soils, and soils in low lying areas, such as Ardilla and Ocilla soils, support good stands of loblolly, slash, and shortleaf pine as well as mixed hardwoods. Soils on bottom lands, such as Bibb, Chewacla, Congaree, and Kinston soils, dominantly support hardwoods, such as yellow-poplar, sycamore, gum, maple, and various oak species.

Forest products contribute several million dollars to the economy of each county. However, the potential gains that could result from improved management practices are significant. Much of the potential for

improvement lies in privately owned land. Over 80 percent of the commercial woodland in each county is on farms or held by other private owners. The forest industry owns only 15 percent of the commercial woodland in Washington and Wilkinson Counties.

Pulpwood markets are similar in each county, but more attractive pine and hardwood sawtimber markets in Washington County offer more incentive for improved sawtimber management. Figures show that growth and removal are fairly well balanced in the counties. However, recent sawtimber removals in Washington County significantly exceed those in Wilkinson County.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; and 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w* indicates excessive water in or on the soil; *c*, clay in the upper part of the soil; *s*, sandy texture; and *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, c, and s.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index values for species other than American sycamore and eastern cottonwood are determined at 50 years of age. American sycamore site index values is determined at 35 years, and cottonwood, at 30 years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

recreation

Washington and Wilkinson Counties have many facilities for recreation. Many farm ponds and several rivers and creeks and their tributaries can be used for fishing and boating. Flood plains along the streams are well suited to hunting and to such recreational activities as nature study. Hamburg State Park provides many recreation activities.

The well drained, nearly level or very gently sloping Cowarts, Dothan, Faceville, Greenville, Marlboro, Nankin, Red Bay, Orangeburg, and Tifton soils, which commonly are on ridgetops, are well suited to playgrounds. The very gentle slopes can be leveled and smoothed and used as ballfields and tennis courts. Most of these areas are well suited to campsites and picnic sites. The sloping or moderately steep Cowarts, Nankin, Orangeburg, and Vaucluse soils on hillsides are well suited to parks, paths and trails, golf courses, and nature study areas.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 8, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning,

design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 8 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

wildlife habitat

Jesse Mercer, Jr., biologist, Soil Conservation Service, assisted in preparing this section.

Although Washington and Wilkinson Counties are used extensively for farming, they provide habitat for a variety of wildlife. The two counties are about 75 percent wooded. These areas provide habitat for deer, squirrels, raccoons, and many nongame animals and songbirds. Quail, rabbits, and doves are abundant in wooded and cropland areas. Rivers, creeks, and beaver ponds provide habitat for waterfowl and other wildlife that need an aquatic environment. There are about 550 farm ponds in the survey area, covering 1,300 acres. These ponds contain many fish.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil

moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, pheasants, meadowlarks, field sparrows, cottontails, and red foxes.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkeys, ruffed grouse, woodcocks, thrushes, woodpeckers, squirrels, gray foxes, raccoons, deer, and bears.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, shore birds, muskrats, mink, and beaver.

engineering

Felton B. Flournoy, civil engineer, Soil Conservation Service, assisted in preparing this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the

performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by a very firm dense layer; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. A cemented pan, a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

sanitary facilities

Table 11 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 11 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, a cemented pan, and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of

compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 11 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 11 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers

of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They have little or no gravel, and have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, and soils that have only 20 to 40 inches of suitable material. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and for embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by permeability. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cutbanks caving. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system

is affected by the depth of the root zone and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 18. Laboratory analyses are not conducted for all soil series in the survey area, but laboratory data for the Eustis, Faceville, Grady, Greenville, Lakeland, Lucy, Marlboro, Rains, and Red Boy soils are available from nearby survey areas (*8*).

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 18.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The

estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

soil and water features

Table 16 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential,

soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 16 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 16 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 16.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An artesian water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

physical and chemical analyses of selected soils

The results of physical and chemical analyses of several typical pedons in the survey area are given in table 17. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil series and their morphology." Soil samples were analyzed by the National Soil Survey Laboratory in Lincoln, Nebraska.

Most determinations, except those for grain-size analysis, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list as follows. The codes in parentheses refer to published methods (*9*).

Sand—(0.05-2.0 mm fraction) weight percentages of materials less than 2 mm (3A1).

Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all materials less than 2 mm (3A1).

Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of materials less than 2 mm (3A1).

Water retained—pressure extraction, percentage of oven-dry weight of less than 2 mm material; 1/3 or 1/10 (3/10) bar (4B1), 15 bars (4B2).

Reaction (pH)—1:1 water dilution (8C1a).

Reaction (pH)—calcium chloride (8C1e).

Ratio 15—bar to clay (8D1).

engineering index test data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil series and their morphology." The soil samples were tested by the office of Materials and Research, Georgia Department of Transportation.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) (*1*) or the American Society for Testing and Materials (ASTM) (*2*).

The tests and methods are: AASHTO classification—M 145; Unified classification—D 2487; Mechanical analysis—T 88; Liquid limit—T 89; Plasticity index—T 90; Moisture density, Method A—T 99; Volume change (CHD-6)—Georgia Highway Standard.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*10*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 19, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plain, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*7*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*10*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Ailey series

The Ailey series consists of well drained soils that formed in sandy and loamy marine sediment. These soils have moderate permeability in the upper part of the subsoil and slow permeability in the Bx horizon. Ailey soils are on ridgetops and hillsides on uplands predominantly of the Sand Hills. Slope is 2 to 8 percent.

Ailey soils are associated on the landscape with Fuquay, Lakeland, and Vaucluse soils. Fuquay soils do not have a fragipan and have 5 percent or more content of plinthite in the lower part of the subsoil. Lakeland soils are excessively drained and are sandy throughout.

Vaucluse soils have an A horizon less than 20 inches thick.

Typical pedon of Ailey loamy sand, 2 to 8 percent slopes, in a wooded area 1.6 miles east on county road from Mills Cemetery; 1 mile south on dirt road; 40 feet west of the road; in Washington County:

Ap—0 to 5 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—5 to 22 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; clear wavy boundary.

B1—22 to 26 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; very strongly acid; gradual wavy boundary.

B2t—26 to 38 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bx1—38 to 46 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; slightly hard and cemented, firm and brittle, slightly sticky; very strongly acid; gradual wavy boundary.

Bx2—46 to 70 inches; mottled yellowish brown (10YR 5/6), red (2.5YR 4/6), and light gray (10YR 7/1) sandy clay loam; moderate medium subangular blocky structure; slightly hard and cemented, firm and brittle, slightly sticky; very strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 34 inches thick. The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The Bt horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 6 or 8. It is sandy loam or sandy clay loam.

The Bx horizon has hue of 10YR or 7.5YR, value of 5, and chroma of 4, 6, or 8. Mottles are strong brown, red, light gray, and yellowish brown.

Ardilla series

The Ardilla series consists of somewhat poorly drained soils that formed in loamy marine sediment. These soils have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. Ardilla soils are on low lying, nearly level upland areas of the Southern Coastal Plain. The water table is within a depth of 1 foot to 2 feet of the surface from November through April. Slope is 0 to 2 percent.

Ardilla soils are associated on the landscape with Dothan, Ocilla, and Persanti soils. Ocilla and Persanti soils are on the same landscape, but Ocilla soils are arenic and have less than 5 percent content of plinthite, and Persanti soils are in a clayey family and do not contain plinthite. Dothan soils are well drained and commonly are on a higher lying landscape than the Ardilla soils.

Typical pedon of Ardilla loamy sand, in a wooded area 0.5 mile north on Georgia Highway 272 from crossing of Buffalo Creek; 1.2 miles east on county road; 0.5 mile south on county road; 225 feet west of the road; in Washington County:

Ap—0 to 6 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—6 to 10 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; gradual smooth boundary.

B21t—10 to 15 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few fine and medium roots; very strongly acid; gradual smooth boundary.

B22t—15 to 19 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; common fine roots in upper part; very strongly acid; gradual wavy boundary.

B23t—19 to 38 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct light gray (10YR 7/1) and yellowish red (5YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, firm, slightly sticky; some brittleness in red part; patchy clay films on faces of peds; about 4 percent nodular plinthite; very strongly acid; gradual wavy boundary.

B24t—38 to 65 inches; reticulately mottled yellowish brown (10YR 5/6), yellowish red (5YR 5/6), light gray (10YR 7/1), and strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; areas dominated by yellowish red are brittle and compact, and the gray areas are friable; patchy clay films on faces of peds; about 6 percent nodular plinthite; very strongly acid.

Thickness of the solum is 60 to 65 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The Ap horizon is 5 to 8 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2

horizon has hue of 10YR, value of 4 to 6, and chroma of 2 to 4.

The upper part of the Bt horizon has hue of 10YR; value of 5; and chroma of 4, 6, or 8; or it has hue of 2.5Y, value of 6, and chroma of 4. Mottles are gray, strong brown, and yellowish red. The lower part of the Bt horizon has common or many yellow, brown, red, and gray mottles. Content of plinthite ranges from 4 percent in the upper part of the Bt horizon to 7 percent in the lower part. The Bt horizon is dominantly sandy clay loam but ranges to sandy clay in the lower part.

Bibb series

The Bibb series consists of poorly drained soils that formed in loamy and sandy alluvial sediment. Permeability is moderate. These nearly level soils are on flood plains of the Southern Coastal Plain. The water table is within 0.5 foot to 1.5 feet of the surface from December through May. Slope is 0 to 2 percent.

Bibb soils are associated on the landscape with Kinston and Ochlockonee soils. Kinston soils are in a fine-loamy family. Ochlockonee soils do not have mottles of chroma 2 or less within 20 inches of the surface.

Typical pedon of Bibb sandy loam, in an area of Bibb and Kinston sandy loams, in a wooded area 1 mile southwest of the Piney Mount Church on a county road; 1.2 miles south on county road; 300 feet south of the road; in Washington County:

A11—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A12g—5 to 13 inches; dark gray (10YR 4/1) loamy sand; few fine faint yellowish brown mottles; single grain; very friable; common fine roots; strongly acid; clear wavy boundary.

C1g—13 to 37 inches; gray (5Y 5/1) sandy loam; few fine faint yellowish brown mottles; massive; friable; few medium roots; strongly acid; gradual wavy boundary.

C2g—37 to 49 inches; gray (5Y 5/1) sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; strongly acid.

C3g—49 to 65 inches; light gray (10YR 6/1) loamy sand; common medium distinct yellowish brown (10YR 5/6) mottles; single grain; very friable; common thin strata of sandy loam; strongly acid.

The soil is more than 80 inches thick. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 12 to 18 inches thick. The A11 horizon has hue of 10YR, value of 4, and chroma of 1 or 2. The A12g horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2.

The C horizon has hue of 10YR, 2.5Y, or 5Y; value of 3 to 7; and chroma of 1 or 2. It is sand, loamy sand, or sandy loam. Few or common, fine or medium, brown and yellow mottles are throughout the horizon.

Chastain series

The Chastain series consists of poorly drained soils that formed in clayey sediment. Permeability is slow. These nearly level soils are on flood plains near the larger rivers that drain mainly from the Southern Piedmont. The water table commonly is within 1 foot of the surface from November through May. Slope is less than 2 percent.

Chastain soils are associated on the landscape with Bibb, Chewacla, and Congaree soils. Bibb soils are in a coarse-loamy family and are in drainageways on the outer part of the flood plain. Chewacla soils are somewhat poorly drained and are on slightly higher lying areas. Congaree soils are well drained or moderately well drained and are on higher lying areas commonly adjacent to the major streams.

Typical pedon of Chastain loam, in an area of the Chewacla-Chastain association, in a wooded area 0.3 mile east from the Oconee River on Georgia Highway 57; 300 feet north of the highway; in Washington County:

A1—0 to 6 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; many fine roots; medium acid; abrupt smooth boundary.

B1g—6 to 18 inches; gray (10YR 5/1) clay; few fine faint strong brown mottles; moderate medium subangular blocky structure; hard, friable, slightly sticky; few fine and medium roots; few fine black concretions; strongly acid; gradual smooth boundary.

B2g—18 to 65 inches; gray (10YR 6/1) clay; common medium distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; few medium roots; few black concretions; common very fine flakes of mica; strongly acid.

Thickness of the solum is 60 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 6 or 7 inches thick. It has hue of 7.5YR or 10YR, value or 4 or 5, and chroma of 2 to 4.

The B horizon has hue of 5Y to 10YR, value of 4 to 7, and chroma of 1 or 2. It is clay loam, silty clay loam, or clay. If present, mottles are common or many and are brown, strong brown, pale brown, and yellowish brown. Flakes of mica and small black concretions are few and fine or medium.

Chewacla series

The Chewacla series consists of somewhat poorly drained soils that formed in loamy alluvial sediment. Permeability is moderate. These nearly level soils are on

flood plains near the larger rivers that drain from the Southern Piedmont. The water table is within 1.5 feet of the surface from November through April. Slope is mostly less than 2 percent but ranges to 2 percent.

Chewacla soils are associated on the landscape with Bibb, Chastain, Congaree, and Kinston soils. Bibb and Kinston soils are poorly drained and are in small drainageways on the outer part of the flood plain. Chastain soils are poorly drained and are on lower lying areas. Congaree soils are well drained or moderately well drained and are on slightly higher lying parts of the landscape mainly adjacent to the rivers.

Typical pedon of Chewacla loam, in an area of Chewacla-Congaree association, in a wooded area 3.3 miles southeast from Collins Cemetery on Buckhorn Lake Road; 140 feet north of road parallel to the railroad; in Wilkinson County:

A11—0 to 6 inches; brown (7.5YR 4/2) loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

A12—6 to 10 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

B1—10 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine and medium roots; few fine flakes of mica and black concretions; very strongly acid; gradual wavy boundary.

IIB21—18 to 32 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few medium roots; few black concretions; very strongly acid; gradual wavy boundary.

IIB22—32 to 50 inches; mottled yellowish brown (10YR 5/6), light gray (10YR 7/2), and strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; common black concretions; very strongly acid; gradual wavy boundary.

IIIC—50 to 65 inches; stratified, light gray (10YR 7/2) and brownish yellow (10YR 6/6) loamy sand and sandy loam; massive; friable; very strongly acid.

Thickness of the solum is 46 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 10 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 to 4; or hue of 7.5YR, value of 3 to 5, and chroma of 2 or 4.

The B1 horizon has hue of 10YR, value of 4, and chroma of 3 or 4; or hue of 7.5YR, value of 4 or 5, and chroma of 2 or 4. It is fine sandy loam or silt loam.

The B2 horizon has hue of 10YR, value of 5 or 6, and chroma of 2 or 4; or hue of 2.5Y; value of 5 or 6; and chroma of 2, 4, or 6. It is silt loam, silty clay loam, or sandy clay loam. Motties are common or many and are strong brown, light brownish gray, light gray, and yellowish brown. In some pedons the B horizon has fine mica flakes and small black concretions.

The C horizon is mottled light gray, brownish yellow, or strong brown. It is loamy sand and sandy loam that is stratified.

Congaree series

The Congaree series consists of well drained or moderately well drained soils that formed in loamy alluvial sediment. Permeability is moderate. These nearly level soils are on flood plains near the larger rivers that drain mainly from the Southern Piedmont. The water table commonly is within 2.5 to 4 feet of the surface from November through April. Slope is 0 to 2 percent.

Congaree soils are associated on the landscape with Chastain and Chewacla soils. Chastain soils are poorly drained and are mostly in sloughs and depressional areas. Chewacla soils are somewhat poorly drained and are on slightly higher lying plains adjacent to the Chastain soils.

Typical pedon of Congaree loam, in an area of Chewacla-Congaree association, in a wooded area 0.5 mile north of Buffalo Creek on Georgia Highway 272; 2.9 miles west on county road; 2.1 miles east on wooded road; 20 feet south of the road; in Washington County:

A1—0 to 5 inches; reddish brown (5YR 4/4) loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

C1—5 to 19 inches; reddish brown (5YR 4/4) loam; massive; friable; many fine roots and pores; few black concretions; few worm casts; medium acid; gradual wavy boundary.

C2—19 to 42 inches; reddish brown (5YR 4/4) silty clay loam; common medium distinct pale brown (10YR 6/3) mottles; massive; slightly hard, friable, slightly sticky; few medium roots; few worm casts; few fine charcoal fragments; common horizontal lenses that are silt loam; medium acid; gradual wavy boundary.

C3—42 to 68 inches; reddish brown (5YR 4/4) silt loam; common medium distinct grayish brown (10YR 5/2) mottles and few fine faint dark reddish brown mottles; massive; slightly hard, friable, slightly sticky; common fine flakes of mica; few black concretions; medium acid; gradual wavy boundary.

C—68 to 75 inches; light brownish gray (10YR 6/2) loam; common medium distinct reddish brown (5YR 4/4) mottles and few fine faint dark reddish brown mottles; massive; slightly hard, friable, slightly sticky; common fine flakes of mica; strongly acid.

The soil is more than 80 inches thick. The A horizon is 5 to 9 inches thick. It has hue of 5YR and 10YR, value of 3 or 4, and chroma of 2 to 4; or hue of 7.5YR, value of 3 or 4, and chroma of 2 or 4.

The C horizon has hue of 5YR, value of 3 or 4, and chroma of 3 or 4; hue of 7.5YR, value or 4 or 5, and chroma of 4; or hue of 10YR, value of 3 to 6, and chroma of 3 or 4. The C horizon is stratified or has lenses of loamy sand, sandy loam, sandy clay loam, silt loam, and silty clay loam. If present, mottles are common or many reddish brown, dark reddish brown, grayish brown, and pale brown in the upper 20 inches of the horizon. In some pedons the lower part is mottled dark brown, pale brown, and light brownish gray loamy sand and sandy loam that is stratified.

Cowarts series

The Cowarts series consists of well drained soils that have moderate permeability in the subsoil and moderately slow or slow permeability in the substratum. These soils formed in predominantly loamy marine sediment. They are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 2 to 12 percent.

Cowarts soils are associated on the landscape with Dothan, Nankin, and Susquehanna soils. Dothan soils are in a fine-loamy family and have 5 percent or more content of plinthite in the lower part of the subsoil. Nankin soils are in a clayey family and have a thicker solum than Cowarts soils. Susquehanna soils are somewhat poorly drained and are in a fine family.

Typical pedon of Cowarts loamy sand, in an area of Cowarts-Nankin complex, 2 to 5 percent slopes, in a wooded area 0.7 mile northwest on county road from Pringle; 65 feet north of the road; in Washington County:

Ap—0 to 6 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine roots; few nodules of ironstone; strongly acid; abrupt smooth boundary.

B1—6 to 10 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; friable; few fine roots; few nodules of ironstone; strongly acid; gradual wavy boundary.

B21t—10 to 20 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; few nodules of ironstone; strongly acid; gradual wavy boundary.

B22t—20 to 28 inches; yellowish brown (10YR 5/8) sandy clay loam; many coarse prominent yellowish red (5YR 5/6) and red (2.5YR 4/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; 2 to 3 percent plinthite; strongly acid; gradual wavy boundary.

C—28 to 65 inches; mottled yellowish brown (10YR 5/8), light gray (10YR 7/2), red (10R 4/6), and strong brown (7.5YR 5/6) sandy clay loam that has pockets and strata of sandier and more clayey material; massive; hard, firm, slightly sticky; strongly acid.

Thickness of the solum is 22 to 35 inches. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. If present, nodules of ironstone range to about 5 percent in the A and B horizon.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. This horizon is loamy sand or sandy loam.

The Bt horizon has hue of 7.5YR and 10YR, value of 5, and chroma of 6 or 8. If present, brown and red mottles are in the lower part of the horizon.

The C horizon is mottled with hue of 10R; value of 4 to 6; and chroma of 1 to 4, 6, or 8; hue of 2.5YR; value of 4 to 6; and chroma of 2, 4, 6, or 8; hue of 7.5YR; value of 4 to 7; and chroma of 2, 4, 6, or 8; hue of 10YR; value of 4 to 7; and chroma of 1 to 4, 6, or 8.

Dothan series

The Dothan series consists of well drained soils that have moderate permeability in the upper part of the subsoil and moderately slow permeability in the lower part. These soils formed in dominantly loamy marine sediment. They are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 0 to 8 percent.

Dothan soils are associated on the landscape with Cowarts, Fuquay, Nankin, and Tifton soils. Cowarts soils have a thinner solum than the Dothan soils, and they have less than 5 percent plinthite in the solum. Fuquay soils are arenic. Nankin soils have a clayey Bt horizon. Tifton soils have more nodules of ironstone throughout the profile than the Dothan soils.

Typical pedon of Dothan loamy sand, 2 to 5 percent slopes, in a wooded area 2.6 miles southeast on Georgia Highway 242 from Riddleville; 1 mile north on county road; 60 feet east of the road; in Washington County:

A1—0 to 6 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; few fine nodules of ironstone; medium acid; clear smooth boundary.

B1—6 to 10 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; few fine nodules of ironstone; medium acid; clear smooth boundary.

B21t—10 to 27 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; few medium roots; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—27 to 35 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) and yellowish red (5YR 4/6)

mottles; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; 4 percent nodular plinthite; strongly acid; gradual wavy boundary.

B23t—35 to 65 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/8), red (2.5YR 4/8), and yellowish red (5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; 10 percent nodular plinthite that is brittle in the red part; strongly acid.

Thickness of the solum is 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 9 inches thick. It has hue of 10YR, value of 4 to 6, and chroma of 2 or 3.

The Bt horizon has hue of 7.5YR and 10YR; value of 5 or 6; and chroma of 4, 6, or 8. The lower part of the Bt horizon has common or many, medium, strong brown, yellow, red, and yellowish red mottles. Nodules of ironstone are 5 percent or less in the upper part of the Bt horizon. Content of plinthite ranges from 6 to 12 percent in the B22t horizon and B23t horizon.

Eustis series

The Eustis series consists of somewhat excessively drained soils that formed in sandy marine deposits. Permeability is moderately rapid or rapid. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 2 to 12 percent.

Eustis soils are associated on the landscape with Lakeland, Lucy, and Red Bay soils. Lakeland soils are excessively drained and do not have an argillic horizon. Lucy soils are well drained and are arenic. Red Bay soils are well drained, are rhodic, and are in a fine-loamy family.

Typical pedon of Eustis loamy sand, 2 to 6 percent slopes, in a wooded area 0.5 mile south on Georgia Highway 68 from intersection with Georgia Highway 272; 150 feet west of the highway; in Washington County:

A1—0 to 6 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; loose, very friable; many fine roots; very strongly acid; clear smooth boundary.

A21—6 to 11 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; many fine roots; very strongly acid; gradual wavy boundary.

A22—11 to 28 inches; brown (7.5YR 4/4) loamy sand; single grain; loose; fine medium roots; very strongly acid; gradual wavy boundary.

B21t—28 to 42 inches; yellowish red (5YR 5/8) loamy sand; weak medium granular structure; loose, friable; sand grains coated with clay; very strongly acid; gradual wavy boundary.

B22t—42 to 70 inches; yellowish red (5YR 4/6) loamy sand; weak medium granular structure; loose, friable; sand grains coated with clay; very strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 18 to 36 inches thick. The A1 horizon has hue of 7.5YR and 10YR, value of 3 to 5, and chroma of 2. The A2 horizon has hue of 7.5YR and 10YR, value of 3 to 5, and chroma of 4 or 6.

The B horizon has hue of 5YR and 7.5YR; value of 4 or 5; and chroma of 4, 6, or 8. In some pedons, few fine faint light yellowish brown and brownish yellow mottles are below a depth of 50 inches.

Faceville series

The Faceville series consists of well drained soils that formed in dominantly clayey marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 1 to 10 percent.

Faceville soils are associated on the landscape with Greenville, Orangeburg, and Red Bay soils. Greenville and Red Bay soils are rhodic. Orangeburg and Red Bay soils are in a fine-loamy family.

Typical pedon of Faceville sandy loam, 1 to 5 percent slopes, in a wooded area 4.5 miles east on Georgia Highway 68 from intersection with Georgia Highway 57; 125 feet north of the highway; in Washington County:

A1—0 to 6 inches; brown (10YR 4/3) sandy loam, weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

B1—6 to 15 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine roots; few patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B21t—15 to 44 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; hard, friable, sticky; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—44 to 65 inches; red (2.5YR 4/8) sandy clay; moderate medium subangular blocky structure; hard, friable, sticky; patchy clay films on faces of peds; strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 4, and chroma of 2 to 4.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. The lower part of the Bt horizon has few and common strong brown and yellowish brown mottles.

Fuquay series

The Fuquay series consists of well drained soils that have moderate permeability in the upper part of the subsoil and slow permeability in the lower part. These soils formed in sandy and loamy marine sediment on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 0 to 8 percent.

Fuquay soils are associated on the landscape with Ailey, Dothan, and Lakeland soils. Ailey soils have a Bx horizon. Dothan soils have a sandy A horizon less than 20 inches thick. Lakeland soils are sandy throughout.

Typical pedon of Fuquay loamy sand, 0 to 5 percent slopes, in a cultivated field 1.2 miles west on Georgia Highway 24 from crossing of Buffalo Creek; 120 feet north of the road; in Washington County:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; slightly acid; clear smooth boundary.

A2—7 to 23 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

B1—23 to 31 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; slightly sticky, friable; strongly acid; gradual wavy boundary.

B21t—31 to 42 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; strongly acid; gradual wavy boundary.

B22t—42 to 52 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; few nodules of plinthite; strongly acid; gradual wavy boundary.

B23t—52 to 70 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct yellowish red (5YR 5/8) mottles, few medium distinct pale brown (10YR 6/3) mottles, and few fine faint light gray mottles; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky; 8 percent plinthite; few patchy clay films on faces of peds; strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 32 inches thick. The Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 or 2; or hue of 2.5Y, value of 4 or 5, and chroma of 2. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4; or hue of 2.5Y, value of 5 or 6, and chroma of 4.

The Bt horizon has hue of 10YR, value of 5, and chroma of 6 or 8. The lower part of the Bt horizon has few or common, fine and medium yellowish red, red, pale brown, and light gray mottles. Content of plinthite ranges from 5 to 10 percent in the B22t horizon and B23t horizon.

Grady series

The Grady series consists of poorly drained soils that formed predominantly in clayey marine sediment. Permeability is slow. These nearly level soils are in depressional areas on uplands of the Southern Coastal Plain. The soil is ponded, or the water table is within 1 foot of the surface from December through June. Slope is less than 2 percent.

Grady soils are associated on the landscape with Dothan, Faceville, Orangeburg, Rains, and Tifton soils. Except for the Rains soils, the associated soils are well drained and are on higher lying areas of the landscape. Rains soils are poorly drained and are in depressional areas or drainageways. They are in a fine-loamy family.

Typical pedon of Grady loam, in a wooded area 0.6 mile east on Georgia Highway 24, from intersection with Georgia Highway 15; 0.4 mile northwest on county road; 100 feet west of the road; in Washington County:

A1—0 to 7 inches; very dark gray (10YR 3/1) loam; weak medium subangular blocky structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

B1g—7 to 12 inches; dark gray (10YR 4/1) sandy clay loam; weak medium subangular blocky structure; slightly friable, slightly hard, sticky; many fine and medium roots; very strongly acid; gradual wavy boundary.

B21tg—12 to 23 inches; gray (5Y 5/1) clay; few fine faint yellowish brown mottles and common medium distinct strong brown (7.5YR 5/8) mottles; strong medium subangular blocky structure; hard, firm, very sticky; few fine and medium roots; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—23 to 52 inches; gray (10YR 6/1) clay; common medium distinct light yellowish brown (10YR 6/4) mottles; strong medium subangular blocky structure; hard, firm, very sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—52 to 65 inches; gray (10YR 6/1) sandy clay; many medium distinct strong brown (7.5YR 5/8) mottles and common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; hard, firm, very sticky; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 to 70 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 7 inches thick. It has hue of 10YR, value of 2 to 4, and chroma of 1 to 2.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1. It has common or many brownish, yellowish, and red mottles. The Bt horizon is dominantly clay but ranges to sandy clay.

Greenville series

The Greenville series consists of well drained soils that formed dominantly in clayey marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 1 to 10 percent.

Greenville soils are associated on the landscape with Faceville, Orangeburg, and Red Bay soils. Faceville and Orangeburg soils have a Bt horizon with value of 4 or more. In addition, Orangeburg soils are in a fine-loamy family. Red Bay soils are similar to the Greenville soils except Red Bay soils are in a fine-loamy family.

Typical pedon of Greenville sandy loam, 1 to 5 percent, in a cultivated field 3.4 miles west on Deepstep Road from the Courthouse in Sandersville; 0.3 mile south of county road; 135 feet northwest of the road; in Washington County:

Ap—0 to 6 inches; dark reddish brown (5YR 3/3) sandy loam; weak fine granular structure; very friable; many fine roots; few iron and manganese concretions; strongly acid; abrupt smooth boundary.

B1—6 to 11 inches; dark reddish brown (2.5YR 3/4) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine roots; few clay films on faces of peds; few iron and manganese concretions; strongly acid; gradual wavy boundary.

B21t—11 to 38 inches; dark red (2.5YR 3/6) sandy clay; moderate medium subangular blocky structure; hard, friable, sticky; clay films on faces of peds; few iron and manganese concretions; strongly acid; gradual wavy boundary.

B22t—38 to 70 inches; dark red (10R 3/6) sandy clay; moderate medium subangular blocky structure; hard, friable, very sticky; clay films on faces of peds; strongly acid.

Thickness of the solum is 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 7 inches thick. It has hue of 2.5YR and 7.5YR, value of 3, and chroma of 2 or 4; or hue of 5YR, value of 3, and chroma of 2 to 4.

The Bt horizon has hue of 10R and 2.5YR, value of 3, and chroma of 4 or 6.

Kinston series

The Kinston series consists of poorly drained soils that formed in loamy fluvial sediment that is stratified. Permeability is moderate. These nearly level soils are on flood plains of the Southern Coastal Plain. The water table commonly is within 1 foot or less of the surface from November through June. Slope is 0 to 2 percent.

Kinston soils are associated on the landscape with Bibb and Ochlockonee soils. Bibb soils do not have an argillic horizon. Ochlockonee soils formed in brown sediment and do not have mottles with chroma of 2 or less within 20 inches of the surface.

Typical pedon of Kinston sandy loam, in an area of Bibb and Kinston sandy loams, in a wooded area 1 mile southwest on county road from the Piney Mount Church; 0.8 mile south on county road; 225 feet east of road on the Ohoopee River flood plain; in Washington County:

A11—0 to 6 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A12g—6 to 11 inches; gray (10YR 5/1) sandy loam; weak medium granular structure; friable; many fine roots; strongly acid; clear wavy boundary.

C1g—11 to 19 inches; gray (10YR 5/1) sandy clay loam; few fine faint brownish yellow mottles; massive in place parting to weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few medium roots; strongly acid; gradual smooth boundary.

C2g—19 to 42 inches; gray (10YR 5/1) clay loam; common medium distinct brownish yellow (10YR 6/8) mottles; massive in place parting to weak medium subangular blocky structure; slightly hard, friable, slightly sticky; strongly acid; gradual wavy boundary.

C3g—42 to 52 inches; gray (10YR 6/1) clay loam; few fine distinct brownish yellow and strong brown mottles; massive in place parting to weak medium subangular blocky structure; slightly hard, friable, slightly sticky; strongly acid; gradual wavy boundary.

C4g—52 to 65 inches; gray (10YR 6/1) loamy sand and sand that is stratified; single grain; very friable; strongly acid.

The soil is more than 80 inches thick. It is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 3 or 4, and chroma of 1 to 3.

The C1g horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. Few or common brownish yellow mottles are throughout the horizon. This horizon is loam or fine sandy loam.

The C2g and C3g horizons have hue of 10YR, value of 5 or 6, and chroma of 1. If present, mottles are few or common yellowish brown, strong brown, and pale brown. These horizons are sandy clay loam or clay loam.

The C4g horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. If present, strong brown mottles are few or common. This horizon is sand, loamy sand, and sandy loam that is stratified.

Lakeland series

The Lakeland series consists of excessively drained soils that formed in sandy marine sediment. Permeability is rapid. These soils are on ridgetops and hillsides predominantly on uplands of the Sand Hills. Slope is 0 to 12 percent.

Lakeland soils are associated on the landscape with Ailey, Fuquay, and Vaucluse soils. Ailey and Vaucluse soils have a loamy Bx horizon. In addition, Ailey soils are arenic. Fuquay soils are arenic and have a loamy subsoil that contains plinthite.

Typical pedon of Lakeland sand, 0 to 8 percent slopes, in a wooded area 0.1 mile east of the Down Church; 1.7 miles north on county road; 90 feet east of the road; in Washington County:

A—0 to 5 inches; very dark gray (10YR 3/1) sand; single grain; loose; many fine roots; very strongly acid; clear smooth boundary.

C1—5 to 12 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; very strongly acid; gradual wavy boundary.

C2—12 to 52 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few uncoated sand grains; very strongly acid; gradual wavy boundary.

C3—52 to 68 inches; brownish yellow (10YR 6/6) sand; few fine very pale brown mottles; single grain; loose; many uncoated sand grains; very strongly acid; gradual wavy boundary.

C4—68 to 85 inches; very pale brown (10YR 7/4) sand; single grain; loose; many uncoated sand grains; very strongly acid.

Thickness of the sand is 80 to 90 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 7 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 to 3.

The C horizon has hue of 5YR and 7.5YR, value of 5 or 6, and chroma of 6 or 8; or hue of 10YR; value of 5 to 7; and chroma of 4, or 6, or 8. Few fine, faint very pale brown and strong brown mottles are in some C horizons below a depth of 50 inches.

Lucy series

The Lucy series consists of well drained soils that formed in sandy and loamy marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 0 to 8 percent.

Lucy soils are associated on the landscape with Fuquay, Orangeburg, and Lakeland soils. Fuquay soils have 5 percent or more plinthite in the lower part of the subsoil. Orangeburg soils have an A horizon less than 20 inches thick. Lakeland soils are sandy throughout.

Typical pedon of Lucy loamy sand, 0 to 5 percent slopes, in a wooded area 5 miles east on Georgia Highway 57 from the intersection with Georgia Highway 112; 45 feet south of the highway; in Wilkinson County:

A1—0 to 7 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

A2—7 to 23 inches; yellowish brown (10YR 5/6) loamy sand; weak fine granular structure; very friable; few fine and medium roots; strongly acid; gradual smooth boundary.

B21t—23 to 36 inches; yellowish red (5YR 5/6) sandy loam; weak fine subangular blocky structure; few fine and medium roots; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B22t—36 to 70 inches; red (2.5YR 4/8) sandy clay loam; weak and moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 28 inches thick. The A1 horizon has hue of 7.5YR and 10YR, value of 3 to 5, and chroma of 2. The A2 horizon has hue of 7.5YR and 10YR, value of 4 to 6, and chroma of 6 or 8.

The Bt horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8. The upper part of the Bt horizon is sandy loam or sandy clay loam.

Marlboro series

The Marlboro series consists of well drained soils that formed dominantly in clayey marine sediment. Permeability is moderate. These soils are on broad ridgetops on uplands of the Southern Coastal Plain. Slope is 2 to 5 percent.

Marlboro soils are associated on the landscape with Dothan, Faceville, and Tifton soils. Dothan and Tifton soils are in a fine-loamy family and have more than 5 percent plinthite between a depth to 30 and 60 inches. Faceville soils have an argillic horizon with dominant color of 5YR or of redder hue.

Typical pedon of Marlboro sandy loam, 2 to 5 percent slopes, in a cultivated field 1.5 miles east on Georgia Highway 24 from Davisboro; 1.2 miles north on county road; 75 feet east of the road; in Washington County:

Ap—0 to 6 inches; brown (10YR 5/3) sandy loam; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

B21t—6 to 21 inches; yellowish brown (10YR 5/6) sandy clay; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine roots; few patchy clay films on faces of peds; medium acid; gradual wavy boundary.

B22t—21 to 32 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; hard, friable, sticky; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B23t—32 to 50 inches; yellowish brown (10YR 5/8) sandy clay; common medium distinct yellowish red (5YR 5/6) and red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; hard, friable, sticky; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B24t—50 to 65 inches; yellowish brown (10YR 5/8) sandy clay; common medium distinct yellowish red (5YR 5/6) and light gray (10YR 7/2) mottles; moderate medium subangular blocky structure; hard, friable, sticky; patchy clay films on faces of peds; strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is medium acid to very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 5 to 7 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3.

The Bt horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8. The lower part of the Bt horizon has few or common, medium yellowish red, red, and light gray mottles.

Mascotte series

The Mascotte series consists of poorly drained soils that formed in sandy and loamy marine sediment. Permeability is moderate. These nearly level soils are on broad upland areas of the Southern Coastal Plain. The water table is within 1 foot of the surface from December through April. Slope is 0 to 2 percent.

Mascotte soils are associated on the landscape with Pelham, Ocilla, and Wahee soils. The associated soils do not have a spodic horizon. In addition, Ocilla and Wahee soils are better drained than the Mascotte soils.

Typical pedon of Mascotte sand, in a wooded area 0.5 mile west on Georgia Highway 57 from the Oconee River; 0.6 mile west on paved county road; 1,200 feet south of the road; in Wilkinson County:

A1—0 to 3 inches; very dark gray (10YR 3/1) sand, weak fine granular structure; loose, very friable; many fine roots; very strongly acid; clear smooth boundary.
A2—3 to 15 inches; gray (10YR 6/1) sand; single grain; loose; many fine roots; very strongly acid; abrupt smooth boundary.
B2h—15 to 20 inches; dark brown (7.5YR 3/2) sand; weak medium, subangular blocky structure; weakly cemented, slightly hard, firm; few medium roots; very strongly acid; clear wavy boundary.
A'2—20 to 36 inches; pale brown (10YR 6/3) sand; single grain; loose; very strongly acid; gradual wavy boundary.
B'21tg—36 to 52 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
B'22tg—52 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 to 65 inches or more. Depth to the Bh horizon is 10 to 15 inches. Depth to the argillic horizon is 35 to 38 inches. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 9 to 15 inches thick. The A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 1. The A2 horizon has hue of 10YR, value of 5 or 6, and chroma of 1.

The B2h horizon has hue of 7.5YR, value of 3, and chroma of 2 or 4; or hue of 10YR, value of 2, and chroma of 2.

The A'2 horizon has hue of 10YR, value of 6 or 7, and chroma of 2 or 3; or hue of 2.5Y, value of 5 to 7, and chroma of 2. If present, mottles are common in shades of brown and gray.

The B'2tg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 5 or 6, and chroma of 2. It has yellowish brown and brownish yellow mottles.

Nankin series

The Nankin series consists of well drained soils. Permeability is moderately slow. These soils formed in beds of predominantly clayey marine sediment. They are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 2 to 12 percent.

Nankin soils are associated on the landscape with Cowarts, Dothan, and Susquehanna soils. Cowarts soils are in a fine-loamy family and have a thinner solum than the Nankin soils. Dothan soils are in a fine-loamy family and have 5 percent or more content of plinthite in the lower part of the subsoil. Susquehanna soils are somewhat poorly drained and are in a fine family.

Typical pedon of Nankin loamy sand, in an area of Cowarts-Nankin complex, 2 to 5 percent slopes, in woods 0.8 mile northwest on county road from Pringle; 0.8 mile north on county road; 0.2 mile northeast on county road; 30 feet east of the road; in Washington County:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; many fine roots; strongly acid; clear smooth boundary.

B1—5 to 8 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine roots; strongly acid; gradual wavy boundary.
B21t—8 to 19 inches; strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure; slightly hard, friable, sticky; few fine roots; patchy clay films on faces of peds; common fine pores; very strongly acid; gradual wavy boundary.
B22t—19 to 27 inches; strong brown (7.5YR 5/6) sandy clay; common medium distinct yellowish red (5YR 5/6) and yellowish brown (10YR 5/6) mottles; moderate medium angular blocky structure; hard, friable, sticky; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.
B3—27 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/6), yellowish red (5YR 5/6), and light gray (10YR 7/2) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
C—50 to 65 inches; mottled yellowish red (5YR 5/6), strong brown (7.5YR 5/6), and light gray (10YR 7/2) sandy clay loam; pockets and thin strata of yellowish brown (10YR 5/6) loamy sand; massive; hard, firm, slightly sticky; very strongly acid.

Thickness of the solum is 42 to 50 inches. The soil is strongly acid or very strongly acid except for the surface layer in limed areas.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Few or common fragments of ironstone and quartz gravel are in some areas. The A horizon is loamy sand or sandy loam.

The B1 horizon has hue of 10YR, value of 5, and chroma of 4 or 6. It is sandy loam or sandy clay loam.

The Bt horizon has hue of 5YR, 7.5YR, and 10YR; value of 5; and chroma of 6 or 8. If present, mottles are common or many yellowish brown, strong brown, or red. Few or common light gray mottles commonly are below a depth of 27 inches. The Bt horizon is dominantly sandy clay but ranges to sandy clay loam in the lower part.

The B3 horizon has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 6; or it is mottled and has similar hue, value, and chroma. The gray mottles in the Bt horizon do not represent wetness but are thought to be derived from the parent material.

The C horizon is mottled yellowish red, strong brown, light gray, or yellowish brown sandy clay loam that has strata of loamy sand or sandy loam.

Ochlockonee series

The Ochlockonee series consists of well drained soils that formed in loamy alluvial sediment from uplands of the Southern Coastal Plain. Permeability is moderate. These nearly level soils are in narrow flood plains, draws, and depressional areas. The water table is within 3 or 4 feet of the surface from December through April. Slope is 0 to 2 percent.

Ochlockonee soils are associated on the landscape mainly with Faceville, Greenville, and Orangeburg soils, and to a lesser extent with Bibb and Kinston soils. Bibb and Kinston soils are on the same landscape but are poorly drained. In addition, Kinston soils have an argillic horizon. Faceville and Greenville soils are on higher lying parts of the landscape and have an argillic horizon.

Typical pedon of Ochlockonee sandy loam, in a wooded area 0.6 mile south on Georgia Highway 15 from the Middle Hill Church; 70 feet east of the highway; in Washington County:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; clear smooth boundary.
C1—4 to 18 inches; brown (7.5YR 4/4) sandy loam; weak fine granular structure; friable; few fine roots; very strongly acid; gradual smooth boundary.
C2—18 to 42 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; friable; few medium roots; very strongly acid; gradual wavy boundary.
C3—42 to 60 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; very strongly acid; gradual wavy boundary.
IIC—60 to 65 inches; dark yellowish brown (10YR 4/4) fine sandy loam; few fine faint strong brown mottles; weak fine subangular blocky structure; slightly hard, friable; very strongly acid.

This loamy alluvial material is 35 to 65 inches or more thick. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon ranges from 4 to 6 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 to 4.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 or 6. It is stratified loamy sand, sandy loam, fine sandy loam, or silt loam. If present, a few fine and faint strong brown mottles are in the lower part of the C horizon.

Ocilla series

The Ocilla series consists of somewhat poorly drained soils that formed in sandy and loamy marine sediment. Permeability is moderate. These nearly level soils are in slightly depressional upland areas of the Southern Coastal Plain. The water table is at a depth of 1 foot to 2.5 feet from December through April. Slope is 0 to 2 percent.

Ocilla soils are associated on the landscape with Ardilla, Pelham, Persanti, and Rains soils. Ardilla soils are on the same landscape but have more than 5 percent plinthite in the subsoil. Pelham and Rains soils

are poorly drained, commonly are somewhat lower lying, and are in drainageways. Persanti soils are moderately well drained and are on old stream terraces. They are in a clayey family.

Typical pedon of Ocilla loamy sand, in a wooded area 1.2 miles southeast of the Gordy Grove Church on Georgia Highway 272; 2.3 miles north on county road; 0.3 mile west along a field road; in Washington County:

A1—0 to 7 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; loose, very friable; many fine roots; very strongly acid; clear smooth boundary.

A21—7 to 16 inches; light brownish gray (2.5Y 6/2) loamy sand; weak fine granular structure; loose, very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

A22—16 to 26 inches; pale brown (10YR 6/3) loamy sand; weak fine granular structure; loose, very friable; few fine and medium roots; very strongly acid gradual wavy boundary.

B1—26 to 37 inches; brownish yellow (10YR 6/6) sandy loam; common medium distinct light brownish gray (2.5Y 6/2) mottles; weak medium subangular blocky structure; friable, slightly sticky; very strongly acid; gradual wavy boundary.

B21t—37 to 52 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct light gray (10YR 7/1) and yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; sand grains coated and bridged with clay; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—52 to 65 inches; mottled yellowish brown (10YR 5/6), yellowish red (5YR 4/8), and light gray (10YR 7/1) sandy clay loam; weak medium subangular blocky structure; hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 72 to 80 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 22 to 28 inches thick. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 6, and chroma of 3 or 4; or hue of 2.5Y, value of 5 or 6, and chroma of 2 or 4. Few fine brownish or grayish mottles are in the lower part.

The Bt horizon has hue of 10YR, value of 6 or 7, and chroma of 6; or hue of 2.5Y, value of 6, and chroma of 4. The Bt horizon is sandy loam or sandy clay loam and has few or common yellow, brown, red, and gray mottles.

Orangeburg series

The Orangeburg series consists of well drained soils that formed dominantly in loamy marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 0 to 17 percent.

Orangeburg soils are associated on the landscape with Dothan, Faceville, Greenville, and Lucy soils. Dothan soils have 5 percent or more plinthite in the lower part of the subsoil. Faceville and Greenville soils have a clayey Bt horizon. In addition, Greenville soils are in a Rhodic subgroup. Lucy soils are arenic.

Typical pedon of Orangeburg loamy sand, 2 to 5 percent slopes, in a wooded area 0.2 mile east of the Ohoopee Baptist Church on a county paved road; 150 feet south of the road; in Washington County:

Ap—0 to 6 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B1—6 to 10 inches; strong brown (7.5YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; clear smooth boundary.

B21t—10 to 18 inches; yellowish red (5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine roots in upper part; many fine and medium pores; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—18 to 52 inches; red (2.5YR 4/8) sandy clay loam; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—52 to 65 inches; red (2.5YR 4/8) sandy clay loam; few fine faint strong brown mottles; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 to 72 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 9 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 to 4. The A horizon is loamy sand or sandy loam.

The B1 horizon has hue of 10YR and 7.5YR; value of 4 or 5; and chroma of 4, 6, or 8; or hue of 5YR, value of 4 or 5, and chroma of 6 or 8.

The Bt horizon has hue of 5YR or 2.5YR, value of 3 to 5, and chroma of 6 or 8. The lower part of the Bt horizon has a few strong brown or yellowish brown mottles. In some pedons, a sandy loam B3 horizon is below a depth of 60 inches.

Pelham series

The Pelham series consists of poorly drained soils that formed in sandy and loamy marine sediment. Permeability is moderate. These nearly level soils are on

broad, upland areas and near drainageways of the Southern Coastal Plain. The water table commonly is within 0.5 foot to 1.5 feet of the surface from January through April. Slope is 0 to 2 percent.

Pelham soils are associated on the landscape with Mascotte, Ocilla, and Rains soils. Mascotte soils have a spodic horizon. Ocilla soils are somewhat poorly drained and are in slightly higher lying depressional areas. Rains soils have a surface layer less than 20 inches thick.

Typical pedon of Pelham loamy sand, in a wooded area 0.7 mile west from Washington County line on Georgia Highway 57; 180 feet north of the highway; in Wilkinson County:

A1—0 to 7 inches; very dark gray (10YR 3/1) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary.

A2—7 to 28 inches; gray (10YR 6/1) loamy sand; single grain; loose; many fine and medium roots in upper part, common medium roots in lower part; very strongly acid; clear wavy boundary.

B1g—28 to 36 inches; gray (10YR 6/1) sandy loam; common medium distinct brownish yellow (10YR 6/6) mottles; weak fine subangular blocky structure; few medium roots; very strongly acid; gradual wavy boundary.

B21tg—36 to 65 inches; light gray (5Y 7/1) sandy clay loam; many medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; sand grains coated and bridged with clay; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is strongly acid to very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 28 to 34 inches thick. The A1 horizon has hue of 10YR, value of 3 or 4, and chroma of 1. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2.

The Bt horizon has hue of 10YR and 5Y, value of 5 to 7, and chroma of 1 or 2; or hue of 2.5Y, value of 5 to 7, and chroma of 0 to 2. If present, few to many strong brown, yellowish brown, brownish yellow, and yellowish red mottles are throughout the horizon.

Persanti series

The Persanti series consists of moderately well drained soils that formed in loamy and clayey sediment. Permeability is slow. These nearly level soils are on terraces near the larger streams of the Southern Coastal Plain. The water table is within 2 to 3.5 feet of the surface from December through April. Slope is 0 to 2 percent.

Persanti soils are associated on the landscape with Ardilla and Ocilla soils. Ardilla soils are in a fine-loamy family and have a firm and brittle plinthic layer in the subsoil. Ocilla soils are arenic.

Typical pedon of Persanti fine sandy loam, in a wooded area 0.5 mile north of Buffalo Creek on Georgia Highway 272; 1.9 miles west on county road; 800 feet north of the road; in Washington County:

A1—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine subangular blocky structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

A2—5 to 15 inches; pale brown (10YR 6/3) fine sandy loam; weak fine subangular blocky structure; friable; many fine and medium roots; strongly acid; clear smooth boundary.

B21t—15 to 20 inches; light yellowish brown (10YR 6/4) clay; few fine distinct strong brown mottles; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—20 to 28 inches; interior of peds mottled strong brown (7.5YR 5/6), yellowish red (5YR 4/8), light gray (10YR 7/2), and light yellowish brown (10YR 6/4) clay that has pale brown clay films on faces of peds; silty clay; moderate medium subangular blocky structure; slightly hard, firm, sticky; few fine pores; few very fine flakes of mica; very strongly acid; clear wavy boundary.

B23t—28 to 52 inches; coarsely mottled red (2.5YR 5/8), strong brown (7.5YR 5/6), and light gray (10YR 7/1) clay; moderate medium subangular blocky structure; hard; firm, sticky; few fine pores; very pale brown (10YR 7/3) continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—52 to 80 inches; light gray (10YR 7/1) clay; common medium distinct yellowish red (5YR 5/6) mottles and common medium prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; hard, firm, sticky; few fine pores; very strongly acid.

Thickness of the solum is 62 to 80 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 6 to 15 inches thick. The A1 horizon or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 2. The A2 horizon has hue of 10YR, value of 6, and chroma of 3 or 4.

The upper part of the Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 or 6; or hue of 7.5YR, value of 5, and chroma of 6. It has common or many yellow, gray, brown, and red mottles. The lower part of the Bt horizon is light gray and has common or many strong brown, yellowish red, and pale brown mottles. The Bt horizon is silty clay or clay.

The B3 horizon is mottled gray, brown, yellow, and red; or it is light gray and has yellow, brown, and yellowish red mottles.

The Persanti soils in this survey area decrease in clay content more than 20 percent from the maximum within a depth of 60 inches. Therefore, they are taxadjuncts to the Persanti series.

Rains series

The Rains series consists of poorly drained soils that formed in loamy marine sediment. Permeability is moderate. These nearly level soils are in slightly depressional areas and on flats on uplands of the Southern Coastal Plain. The water table is within 1 foot of the surface from November through April. Slope is 0 to 2 percent.

Rains soils are associated on the landscape with Bibb, Grady, and Pelham soils. Pelham soils are in a similar position, but they are arenic. Bibb soils are on flood plains and are in a coarse-loamy family. Grady soils are in upland depressional areas and commonly are ponded. In addition, Grady soils have a clayey subsoil.

Typical pedon of Rains sandy loam, in a wooded area 2.5 miles east on Georgia Highway 24; 0.8 mile north on county dirt road; 90 feet west of the road; in Washington County:

A1—0 to 4 inches; very dark gray (10YR 3/1) sandy loam; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

A2—4 to 9 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; slightly hard, friable; many fine roots; very strongly acid; gradual wavy boundary.

B21tg—9 to 18 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few medium roots; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22tg—18 to 44 inches; gray (10YR 6/1) sandy clay loam; many common distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—44 to 65 inches; gray (10YR 6/1) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles and few fine and medium prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; slightly hard, firm, slightly sticky; patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 65 to 70 inches or more. The soil is very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 9 inches thick. The A1 horizon has hue of 2.5Y or 10YR, value of 3 or 4, and chroma of 1 or 2. The A2 horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 1 or 2.

The Btg horizon has hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 1 or 2. Few to many fine or medium yellowish brown and red mottles are throughout the horizon. The Bt horizon is dominantly sandy clay loam but ranges to sandy clay in the lower part.

Red Bay series

The Red Bay series consists of well drained soils that formed dominantly in loamy marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 2 to 8 percent.

Red Bay soils are associated on the landscape with Greenville and Orangeburg soils. Greenville soils are in a clayey family. Orangeburg soils have moist value of 4 or more throughout the soil.

Typical pedon of Red Bay loamy sand, 2 to 5 percent slopes, in a wooded area 2.2 miles north on Georgia Highway 272 from the railroad crossing in Oconee; 3.1 miles northeast on paved county road; 150 feet east of the road; in Washington County:

A1—0 to 6 inches; dark reddish brown (5YR 3/4) loamy sand; weak granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary.

B1—6 to 10 inches; dark reddish brown (2.5YR 3/4) sandy loam; weak fine granular structure; friable; few fine and medium roots; very strongly acid; gradual smooth boundary.

B21t—10 to 48 inches; dark red (10R 3/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—48 to 75 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; slightly hard, friable, slightly sticky; few patchy clay films on faces of peds; very strongly acid.

Thickness of the solum is 60 to 75 inches or more. The soil is strongly acid to very strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 8 inches thick. It has hue of 5YR, value of 3, and chroma of 2 to 4; or hue of 2.5YR, value of 3, and chroma of 2 or 4. The A horizon is loamy sand or sandy loam.

The B1 horizon has hue of 2.5YR, value of 3, and chroma of 4 or 6. The Bt horizon has hue of 10R and 2.5YR, value of 3, and chroma of 6. It is sandy clay loam or sandy loam.

Susquehanna series

The Susquehanna series consists of somewhat poorly drained soils that formed in clayey marine sediment. Permeability is very slow. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. They are wet during periods of high rainfall but do not have a high water table. The water table commonly is at a depth of more than 6 feet. Slope is 2 to 12 percent.

Susquehanna soils are associated on the landscape with the well drained Cowarts, Dothan, and Nankin soils. Cowarts soils are in a fine-loamy family and have a solum about 28 inches thick. Dothan soils are in a fine-loamy family and have 5 percent or more plinthite below a depth of about 24 inches. Nankin soils are in a clayey family.

Typical pedon of Susquehanna sandy loam, 5 to 12 percent slopes, in a wooded area 0.8 mile west of the Friendship Church on Georgia Highway 57; 0.2 mile southeast along a powerline; in Wilkinson County:

A1—0 to 3 inches; dark gray (10YR 4/1) sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt wavy boundary.

A2—3 to 6 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; many fine and medium roots; strongly acid; clear wavy boundary.

B21t—6 to 9 inches; yellowish red (5YR 4/6) clay; many fine faint red mottles; strong medium angular blocky structure; very hard, firm, very sticky; many fine and medium roots; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—9 to 20 inches; red (2.5YR 4/6) clay; many medium distinct light brownish gray (10YR 6/2) mottles; strong medium angular blocky structure; very hard, firm, very sticky; common medium roots; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—20 to 51 inches; light brownish gray (10YR 6/2) clay; common medium distinct yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and red (2.5YR 4/6) mottles; strong medium angular blocky structure; very hard, firm, very sticky; continuous clay film on faces of peds; few kaolin balls; very strongly acid; gradual wavy boundary.

B24t—51 to 65 inches; light gray (2.5Y 7/2) clay; common medium distinct yellowish brown (10YR 5/6) and very pale brown (10YR 7/3) mottles; strong medium angular blocky structure; very hard, firm, very sticky; continuous clay films on faces of peds; few kaolin balls; very strongly acid.

Thickness of the solum is 60 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A1 horizon or Ap horizon is 2 to 4 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The upper part of the Bt horizon has hue of 2.5YR and 5YR; value of 4 or 5; and chroma of 4, 6, or 8; or hue of 7.5YR, value of 5, and chroma of 6; or hue of 10YR, value of 4 or 5, and chroma of 6 or 8. The upper part of the Bt horizon has many or common gray, red, or yellow mottles. The lower part of the Bt horizon is gray, or it is mottled in gray, red, brown, and yellow.

The Susquehanna soils in this survey area have from 62 to 77 percent clay content in the Bt horizon. Therefore, they are taxadjuncts to the Susquehanna series.

Tifton series

The Tifton series consists of well drained soils that formed dominantly in loamy marine sediment. Permeability is moderate. These soils are on ridgetops and hillsides on uplands of the Southern Coastal Plain. Slope is 2 to 8 percent.

Tifton soils are associated on the landscape with Dothan and Marlboro soils. Dothan soils have fewer nodules of ironstone than Tifton soils. Marlboro soils are in a clayey family and have less than 5 percent nodules of ironstone and plinthite throughout.

Typical pedon of Tifton loamy sand, 2 to 5 percent slopes, in a cultivated field 2.2 miles south on Georgia Highway 15 from the railroad crossing in Tennille; 0.3 mile east on county road; 45 feet south on the road; in Washington County:

Apcn—0 to 6 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; 10 percent small nodules of ironstone 0.12 to 0.5 inch in diameter; strongly acid; abrupt smooth boundary.

Blcn—6 to 9 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; 12 percent small nodules of ironstone; strongly acid; clear smooth boundary.

B21tcn—9 to 32 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; sand grains coated and bridged with clay; patchy clay films on faces of peds; 10 percent small nodules of ironstone; strongly acid; gradual wavy boundary.

B22t—32 to 42 inches; strong brown (7.5YR 5/6) sandy clay loam; common medium distinct red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky; patchy clay films on faces of peds; 4 percent small nodules of ironstone; 8 percent nodular plinthite; strongly acid; gradual smooth boundary.

B23t—42 to 65 inches; strong brown (7.5YR 5/6) sandy clay loam; many medium prominent red (2.5YR 4/8) mottles and common medium distinct light gray (10YR 7/2) mottles; moderate medium subangular

blocky structure; slightly hard, firm, slightly sticky; patchy clay films on faces of peds; 15 percent nodular plinthite that is brittle in the red part; strongly acid.

Thickness of the solum is 60 to 65 inches or more. The soil is very strongly acid or strongly acid throughout except for the surface layer in limed areas.

The A horizon is 4 to 6 inches thick. It has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. Nodules of ironstone range from 10 to 25 percent, by volume.

The Bt horizon has hue of 10YR and 7.5YR; value of 5; and chroma of 4, 6, or 8. The lower part of the Bt horizon has common or many red, strong brown, and gray mottles. The upper part is 10 to 15 percent nodules of ironstone. Content of plinthite ranges from 8 to 20 percent at a depth of 30 to 60 inches.

Vaucluse series

The Vaucluse series consists of well drained soils that formed mainly in loamy marine sediment. Permeability is slow. These soils are on ridgetops and hillsides on uplands predominantly of the Sand Hills. Slope is 2 to 17 percent.

Vaucluse soils are associated on the landscape with Ailey, Cowarts, Lakeland, and Nankin soils. Ailey soils are arenic. Cowarts soils do not have a cemented layer in the subsoil. Lakeland soils are sandy throughout. Nankin soils are in a clayey family.

Typical pedon of Vaucluse loamy sand, in an area of Vaucluse and Ailey loamy sands, 8 to 17 percent slopes, in woods 0.6 mile northwest of the Snow Hill Church on a county road; 80 feet northeast of the road; in Wilkinson County:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—4 to 10 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; gradual wavy boundary.

B1—10 to 17 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; gradual wavy boundary.

B21t—17 to 24 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; few medium roots between peds; continuous clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—24 to 37 inches; yellowish red (5YR 4/6) sandy clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; few fine roots between peds; clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bx1—37 to 49 inches; red (2.5YR 4/6) sandy clay loam; many medium prominent strong brown (7.5YR 5/6), very pale brown (10YR 7/4), and light gray (10YR 7/1) mottles; moderate medium platy structure parting to angular blocky; alternate layers of red and gray; gray layers are clay and are very hard, firm and brittle, slightly sticky; thick continuous clay films on faces of peds; few white kaolin particles; roots in cracks oriented horizontally; very strongly acid; gradual wavy boundary.

B3—49 to 65 inches; mottled red (2.5YR 4/6), strong brown (7.5YR 5/6), light gray (10YR 7/1), and yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; hard, firm, slightly brittle, slightly sticky; patchy clay films on faces of some peds; few white kaolin particles; very strongly acid.

Thickness of the solum is 60 to 70 inches or more. The soil is strongly acid or very strongly acid throughout except for the surface layer in limed areas. Depth to the Bx horizon ranges from 19 to 37 inches. Nodules of ironstone are few or common on the surface and, if present, few in the subsoil. In some areas small to large nodules of ironstone are on the surface and throughout the pedon.

The A1 horizon or Ap horizon is 4 to 8 inches thick. It has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. The A2 horizon has hue of 10YR, value of 5, and chroma of 4 or 6.

The B1 horizon has hue of 5YR; value of 4 or 5; and chroma of 4, 6, or 8; or hue of 7.5YR and 10YR, value of 5, and chroma of 6 or 8.

The Bt horizon has hue of 2.5YR and 5YR, value of 4 or 5, and chroma of 6 or 8; or hue of 7.5YR and 10YR, value of 5, and chroma of 6 or 8.

The Bx horizon has hue of 2.5YR and 5YR, value of 4 or 5, and chroma of 6 or 8; hue of 7.5YR, value of 5, and chroma of 6 or 8, or hue of 10YR; value of 5; and chroma of 4, 6, or 8. It has red, strong brown, light gray, and yellowish brown mottles. The B3 horizon commonly is mottled red, strong brown, yellowish brown, and light gray.

The Vaucluse soils in this survey area have clayey strata in the lower part of the Bt horizon and are deeper to the brittle horizon than is typical for the series. Therefore, they are taxadjuncts to the Vaucluse series.

formation of the soils

This section discusses the factors of soil formation and relates them to soils in the survey area. It also explains the processes of soil formation.

Soils are formed when parent material, plants and animals, climate, and topography, or relief, interact for

long periods (*6*). It is the combination of these factors that largely determines the properties of the soil. All of these factors have influenced the formation of each soil in Washington and Wilkinson Counties.

Climate and vegetation are the principal active forces that gradually alter the parent material to form a soil. Topography mainly influences soil drainage and runoff, but it also influences soil temperature. In combination, climate, vegetation, and topography act over long periods to bring about changes in parent material. The five factors of soil formation are discussed in the following paragraphs.

parent material

Parent material is the unconsolidated mass in which a soil forms. It is largely responsible for the chemical and mineralogical composition of a soil. Washington and Wilkinson Counties are underlain by Coastal Plain sediment (*4*).

The Neogene Undifferentiated formations are predominantly in the southeastern part of Washington County. The well drained Cowarts, Dothan, Faceville, Greenville, Nankin, Orangeburg, and Tifton soils formed on uplands in material from these formations. Cowarts, Dothan, Orangeburg, and Tifton soils have a predominantly sandy surface layer and a loamy subsoil. Faceville, Greenville, and Nankin soils have a predominantly loamy surface layer and a clayey subsoil.

Although the Irwinton Sand formation is throughout most of the survey area, it is predominantly in the northern part of Washington County and in the southern part of Wilkinson County. The well drained Faceville, Greenville, Lucy, and Orangeburg soils and the excessively drained Lakeland soils formed on uplands in material from this formation. Faceville and Greenville soils have a loamy surface layer and a clayey subsoil. Lucy and Orangeburg soils have a sandy surface layer or a sandy surface layer and subsurface layer and a loamy subsoil. Lakeland soils are sandy throughout.

The Lower Tertiary-Cretaceous Undifferentiated formations are in the northwestern part of Washington County and in extensive areas in the northern two-thirds of Wilkinson County. The well drained Cowarts, Dothan, Fuquay, Lucy, Orangeburg, and Vaucluse soils and the excessively drained Lakeland soils formed on uplands in material from this formation. Except for Lakeland soils, all of these soils have a predominantly sandy surface layer or a sandy surface layer and subsurface layer and a loamy subsoil. Lakeland soils are sandy throughout.

The Twiggs Clay formation commonly is on hillsides near rivers and creeks throughout the survey area. The well drained Lucy and Orangeburg soils and the excessively drained Lakeland soils formed in material from this formation. Lucy and Orangeburg soils have a predominantly sandy surface layer or sandy surface layer and subsurface layer and a loamy subsoil. Lakeland soils are sandy throughout.

The Suwannee Limestone formation and its residuum is in the extreme southern part of Wilkinson County. The well drained Faceville and Orangeburg soils formed on uplands in material from this formation. Faceville soils have a loamy surface layer and a clayey subsoil. Orangeburg soils have a predominantly sandy surface layer and a loamy subsoil.

Stream alluvium is adjacent to all of the streams in the survey area, but it is most extensive on the flood plain of the Oconee River. The soils on the flood plains formed in more recent sediment than the soils on the uplands. The poorly drained Bibb, Chastain, and Kinston soils range from sandy to fine. The somewhat poorly drained Chewacla soils and the moderately well drained and well drained Congaree soils are fine-loamy.

plants and animals

Plants, animals, and other organisms play significant roles in soil development, but the direct impact of each factor is difficult to measure. Some of the changes caused by plants and animals are gains in organic matter and nitrogen, gain or loss in plant nutrients, and changes in structure and porosity.

The soils of Washington and Wilkinson Counties formed under a succession of plants. Deciduous trees are the climax vegetation that has contributed significantly toward the recycling of plant nutrients, the accumulation of organic matter, and the energy for animal life. Plants provide cover that reduces erosion, and they stabilize the surface of the soil, enabling the soil forming processes to continue. Plants provide a more stable environment for the soil-forming processes because they reduce the extremes in temperature in unprotected soils.

Animal life in the soils is abundant under the present vegetation and environment. Ants, bees, wasps, earthworms, and spiders, by making channels in the soil, and rodents, moles, crustacea, reptiles, and foxes, by making burrows, mix the soil in the upper horizons. Bacteria, fungi, and other micro-organisms hasten the decomposition of organic matter and increase the release of minerals for additional plant growth. Man affects the soil-forming process by tilling the soils, leveling hills, filling valleys, and reducing or increasing soil fertility.

The gains and losses caused by plant and animals in the soil-forming process are important in Washington and Wilkinson Counties. However, within the relatively small confines of the survey area, one soil does not significantly differ from another soil because of plants and animals.

climate

Rainfall and temperature are the two most important measured features of climate that relate to soil properties.

Water is essential in the formation of soil. It dissolves soluble materials and is used by plants and animals. It transports material from one part of the soil to another part and from one area to another area. These processes and chemical reactions in the soil are dependent to some extent on temperature. Temperature is important in controlling the type and quantity of vegetation, the amount and kind of organic matter, and the rate of decomposition of organic matter. The soils in Washington and Wilkinson Counties formed under a thermic temperature regime. The average annual air temperature is about 64 degrees F. The soil temperature at a depth of 20 inches is normally about 2 degrees higher.

The climate of Washington and Wilkinson Counties is warm and moist and is probably similar to the climate that existed as the soils were forming. The relatively high rainfall and warm temperature contribute to rapid soil formation. Rainfall and temperature are uniform throughout the survey area.

relief

Relief implies relative elevation and is defined as the elevation or inequalities of a land surface considered collectively (*7*). Features commonly related to relief are color of the soil, wetness, thickness and content of the organic matter of the A horizon, and plant cover.

In Washington and Wilkinson Counties the obvious effects of relief are color of the soil and wetness. The Dothan and Tifton soils have a brown subsoil. The Grady and Rains soils have a gray matrix throughout the B horizon. This color difference is attributable to a difference in relief and a corresponding difference in internal drainage. Dothan and Tifton soils are higher lying and are better drained than Grady and Rains soils. As a result, both of these soils have better oxidization and a brownish subsoil.

The movement of water across the surface of the soil and through the soil profile is controlled to a large extent by relief. Movement of water across the slope commonly carries solid particles and causes erosion or deposition depending on the kind of relief. On sloping areas, runoff is higher and areas are drier because less water enters the soil. The lower lying areas are commonly wetter as a result of runoff and lateral movement of water through the soil.

time

The length of time that the soil forming factors act on the parent material determines to a large degree the characteristics of the soil. Soils in Washington and Wilkinson Counties are generally classified as either young or mature. The young soils do not have pedogenic horizons. They show an irregular decrease in content of carbon with an increase in depth. Mature soils are in equilibrium with the environment. They have readily recognizable pedogenic horizons and show a regular decrease in content of carbon with an increase in depth.

Bibb and Kinston soils are on flood plains that annually receive new sediment from floodwaters. These soils are stratified and are not old enough to have a zone of illuviation. Dothan, Faceville, Greenville, Marlboro, Red Bay, and Orangeburg soils commonly are on broad, stable, upland landscapes where the soil forming processes have been active for thousands of years. These soils have a thick solum and a highly developed zone of illuviation.

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glossary

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Habitat. The natural abode of a plant or animal; refers to the kind of environment in which a plant or animal normally lives, as opposed to the range or geographical distribution.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics.

The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are—

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. A general term for plant and animal material, in or on the soil in all stages of decomposition. Readily decomposed organic matter is often distinguished from the more stable forms that are past the stage of rapid decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow intake (in tables). The slow movement of water into the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stratified. Arranged in strata, or layers. The term refers to geologic material. Layers in soils that result from the processes of soil formation are called horizons; those inherited from the parent material are called strata.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the "Ap horizon".

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils

are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1965-76 at Sandersville, Georgia]

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days[1]	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	59.9	36.4	48.2	81	9	165	4.27	2.36	5.83	7	.0
February	62.5	35.9	49.2	79	11	100	4.63	1.99	6.78	7	1.7
March	70.7	42.9	56.8	88	23	250	5.10	2.07	7.55	7	.0
April	80.1	51.7	65.9	92	35	477	2.95	1.56	4.09	5	.0
May	83.5	57.9	70.7	96	41	642	4.59	2.93	6.08	8	.0
June	89.4	64.0	76.8	98	49	804	4.21	2.75	5.53	7	.0
July	91.4	67.7	79.5	101	56	915	5.50	3.63	7.19	8	.0
August	90.8	67.8	79.3	100	57	908	4.86	2.14	7.06	7	.0
September	86.4	62.7	74.6	97	48	738	3.54	1.14	5.44	6	.0
October	77.9	52.8	60.3	91	32	772	2.70	.63	4.32	4	.0
November	68.3	41.1	54.7	82	22	145	2.45	1.21	3.45	4	.0
December	63.3	38.2	50.9	80	17	150	5.18	2.80	7.11	7	.0
Yearly:											
Average	77.0	51.6	63.9	---	---	---	---	---	---	---	---
Extreme	---	---	---	103	7	---	---	---	---	---	---
Total	---	---	---	---	---	6,066	49.98	41.38	61.80	77	1.7

[1]A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1965-76
at Sandersville, Georgia]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 15	March 25	April 7
2 years in 10 later than--	March 7	March 20	April 1
5 years in 10 later than--	February 21	March 8	March 21
First freezing temperature in fall:			
1 year in 10 earlier than--	November 21	November 3	October 26
2 years in 10 earlier than--	November 28	November 9	October 30
5 years in 10 earlier than--	December 12	November 20	November 6

TABLE 3.--GROWING SEASON

[Recorded in the period 1965-76
at Sandersville, Georgia]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	261	232	210
8 years in 10	272	240	217
5 years in 10	293	256	230
2 years in 10	314	271	242
1 year in 10	325	280	249

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Washington County	Wilkinson County	Total--	
				Area	Extent
		Acres	Acres	Acres	Pct
AeC	Ailey loamy sand, 2 to 8 percent slopes	4,000	4,700	8,700	1.2
Ar	Ardilla loamy sand	5,235	300	5,535	0.8
Bk	Bibb and Kinston sandy loams	46,830	29,632	76,462	10.6
Cc	Chewacla-Chastain association	8,840	11,415	20,255	2.8
Cg	Chewacla-Congaree association	3,750	5,280	9,030	1.2
CnB	Cowarts-Nankin complex, 2 to 5 percent slopes	17,585	6,900	24,485	3.4
CnC2	Cowarts-Nankin complex, 5 to 12 percent slopes, eroded	12,515	7,500	20,015	2.8
DoA	Dothan loamy sand, 0 to 2 percent slopes	4,430	190	4,620	0.6
DoB	Dothan loamy sand, 2 to 5 percent slopes	42,465	4,075	46,540	6.4
DoC	Dothan loamy sand, 5 to 8 percent slopes	590	530	1,120	0.2
EuB	Eustis loamy sand, 2 to 6 percent slopes	4,550	4,495	9,045	1.2
EuD	Eustis loamy sand, 6 to 12 percent slopes	1,150	805	1,955	0.3
FaB	Faceville sandy loam, 1 to 5 percent slopes	44,175	5,225	49,400	6.8
FaC2	Faceville sandy loam, 5 to 10 percent slopes, eroded	11,460	4,275	15,735	2.2
FsB	Fuquay loamy sand, 0 to 5 percent slopes	12,930	6,980	19,910	2.7
FsC	Fuquay loamy sand, 5 to 8 percent slopes	1,555	2,520	4,075	0.6
Gr	Grady loam	2,495	100	2,595	0.4
GsB	Greenville sandy loam, 1 to 5 percent slopes	7,715	1,605	9,320	1.3
GsC2	Greenville sandy loam, 5 to 10 percent slopes, eroded	4,570	395	4,965	0.7
LaB	Lakeland sand, 0 to 8 percent slopes	29,150	20,770	49,920	6.9
LaD	Lakeland sand, 8 to 12 percent slopes	5,650	10,230	15,880	2.2
LmB	Lucy loamy sand, 0 to 5 percent slopes	5,945	5,250	11,195	1.5
LmC	Lucy loamy sand, 5 to 8 percent slopes	2,080	4,750	6,830	0.9
MaB	Marlboro sandy loam, 2 to 5 percent slopes	5,360	155	5,515	0.8
Mn	Mascotte sand	0	1,800	1,800	0.2
Oc	Ochlockonee sandy loam	1,300	750	2,050	0.3
Od	Ocilla loamy sand	2,980	800	3,780	0.5
OrA	Orangeburg loamy sand, 0 to 2 percent slopes	3,500	935	4,435	0.6
OrB	Orangeburg loamy sand, 2 to 5 percent slopes	49,495	44,765	94,260	13.0
OrE	Orangeburg loamy sand, 12 to 17 percent slopes	6,500	15,610	22,110	3.1
OsC2	Orangeburg sandy loam, 5 to 8 percent slopes, eroded	15,000	40,300	55,300	7.6
OsD2	Orangeburg sandy loam, 8 to 12 percent slopes, eroded	13,720	12,390	26,110	3.6
Pe	Pelham loamy sand	400	800	1,200	0.2
Ps	Persanti fine sandy loam	3,185	200	3,385	0.5
Ra	Rains sandy loam	2,500	1,200	3,700	0.5
ReB	Red Bay loamy sand, 2 to 5 percent slopes	2,650	1,885	4,535	0.6
ReC2	Red Bay sandy loam, 5 to 8 percent slopes, eroded	1,190	2,115	3,305	0.5
SuB	Susquehanna sandy loam, 2 to 5 percent slopes	1,440	1,300	2,740	0.4
SuD	Susquehanna sandy loam, 5 to 12 percent slopes	900	1,600	2,500	0.3
TfB	Tifton loamy sand, 2 to 5 percent slopes	21,465	100	21,565	3.0
TsC2	Tifton sandy loam, 5 to 8 percent slopes, eroded	900	60	960	0.1
Up	Udorthents-Pits complex	4,500	3,905	8,405	1.2
VaC	Vaucluse and Ailey loamy sands, 2 to 8 percent slopes	6,090	9,350	15,440	2.1
VaD	Vaucluse and Ailey loamy sands, 8 to 17 percent slopes	8,300	15,050	23,350	3.2
	Total	431,040	292,992	724,032	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields in the N columns are for nonirrigated soils; those in the I columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield figure indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn		Soybeans		Cotton lint		Wheat		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
AeC---- Ailey	45	70	18	20	350	400	20	25	5.0	6.0	5.0	6.0
Ar---- Ardilla	85	135	45	55	---	---	35	40	8.5	10.5	8.5	10.5
Bk---- Bibb and Kinston	---	---	---	---	---	---	---	---	---	---	---	---
Cc:** Chewacla.	80	---	30	---	---	---	---	---	9.0	---	8.0	---
Chastain.	---	---	---	---	---	---	---	---	---	---	---	---
Cg:** Chewacla.	80	---	30	---	---	---	---	---	9.0	---	8.0	---
Congaree.	125	---	45	---	---	---	---	---	10.0	---	9.0	---
CnB---- Cowarts-Nankin	80	125	35	40	650	800	35	40	8.0	10.0	7.5	9.5
CnC2---- Cowarts-Nankin	---	---	---	---	---	---	---	---	7.0	9.0	6.5	8.5
DoA---- Dothan	120	190	40	45	900	1,100	45	55	10.5	13.0	9	11.5
DoB---- Dothan	120	190	35	40	900	1,100	40	50	10.5	13.0	9	11.5
DoC---- Dothan	100	160	30	35	800	950	35	45	10.0	12.5	8	10.0
EuB---- Eustis	60	120	25	40	---	---	---	---	7.0	10.0	6.5	9.5
EuD---- Eustis	---	---	---	---	---	---	---	---	6.0	9.0	5.5	8.5
FaB---- Faceville	115	185	45	50	875	1,050	40	50	10.0	12.5	7.0	9.0
FaC2---- Faceville	85	135	25	30	550	650	30	40	8.5	10.0	5.5	6.5
FsB---- Fuquay	80	140	30	40	650	800	30	35	7.5	9.5	7.5	9.0
FsC---- Fuquay	75	130	25	30	600	750	25	30	7.0	9.0	7.0	9.0
Gr---- Grady	---	---	---	---	---	---	---	---	---	---	---	---
GsB---- Greenville	115	185	45	50	875	1,050	40	50	10	12.5	7.0	9.0
GsC2---- Greenville	85	135	25	30	550	650	30	40	8.5	10.0	5.5	6.5
LaB---- Lakeland	55	110	20	35	---	---	---	---	7.0	10.0	7.0	10.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Cotton lint		Wheat		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
LaD---- Lakeland	---	---	---	---	---	---	---	---	6.5	9.5	6.5	9.5
LmB---- Lucy	80	140	33	45	650	800	30	35	8.0	10.0	8.5	10.0
LmC---- Lucy	70	120	25	35	600	750	25	30	7.5	9.5	8.5	9.0
MaB---- Marlboro	115	185	45	50	875	1,050	40	50	10	12.5	7.0	9.0
Mn---- Mascotte	---	---	---	---	---	---	---	---	---	---	8.0	---
Oc---- Ochlockonee	110	---	40	---	---	---	30	---	8.0	---	8.0	---
Od---- Ocilla	75	120	35	40	---	---	35	40	8.5	10.5	7.5	10.0
OrA---- Orangeburg	120	190	45	55	900	1,100	45	55	10.5	13.0	8.5	10.5
OrB---- Orangeburg	120	190	45	55	900	1,100	45	55	10.5	13.0	8.5	10.5
OrE---- Orangeburg	---	---	---	---	---	---	---	---	8.0	10.0	6.0	7.0
OsC2---- Orangeburg	85	135	35	40	700	850	35	45	10.0	12.5	8.0	10.0
OsD2---- Orangeburg	75	---	30	---	600	---	25	---	9.0	11.0	7.0	8.5
Pe---- Pelham	---	---	---	---	---	---	---	---	---	---	---	---
Ps---- Persanti	100	160	40	50	700	850	35	40	9	11.0	8	10.0
Rs---- Rains	---	---	---	---	---	---	---	---	---	---	6.0	---
ReB---- Red Bay	120	190	45	55	900	1,100	45	55	10.5	13.0	8.5	10.5
ReC2---- Red Bay	85	135	35	40	700	850	35	45	10.0	12.5	8.0	10.0
SuB---- Susquehanna	---	---	---	---	---	---	---	---	---	---	6.5	7.5
SuD---- Susquehanna	---	---	---	---	---	---	---	---	---	---	5.5	6.5
TfB---- Tifton	115	185	46	55	950	1,150	45	50	10.5	13.5	8.5	10.5
TsC2---- Tifton	80	130	34	40	650	800	35	45	9.0	11.0	7.0	8.5
Up---- Udorthents-Pits	---	---	---	---	---	---	---	---	---	---	---	---
VaC---- Vaucluse and Ailey	60	95	25	30	500	600	25	30	8.0	9.5	7.0	8.5

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn		Soybeans		Cotton lint		Wheat		Improved bermudagrass		Bahiagrass	
	N	I	N	I	N	I	N	I	N	I	N	I
	Bu	Bu	Bu	Bu	Lb	Lb	Bu	Bu	AUM*	AUM*	AUM*	AUM*
VaD---------- Vaucluse and Ailey	---	---	---	---	---	---	---	---	7.0	8.5	6.0	7.0

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.
** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Dashes indicate no acreage]

Class	Total acreage	Major management concerns (Subclass)		
		Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
I:				
Washington County----------	7,930	---	---	---
Wilkinson County----------	1,125	---	---	---
II:				
Washington County----------	219,505	190,910	9,720	18,875
Wilkinson County----------	78,190	64,710	1,250	12,230
III:				
Washington County----------	48,625	33,710	6,730	8,185
Wilkinson County----------	65,520	47,675	6,080	11,765
IV:				
Washington County----------	69,415	33,765	2,500	33,150
Wilkinson County----------	59,010	30,540	3,000	25,470
V:				
Washington County----------	49,725	---	49,725	---
Wilkinson County----------	30,532	---	30,532	---
VI:				
Washington County----------	31,340	15,700	8,840	6,800
Wilkinson County----------	54,710	32,260	11,415	11,035

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
AeC---------- Ailey	4s	Slight	Moderate	Moderate	Slash pine----------	70	Slash pine, longleaf pine.
					Longleaf pine----------	60	
Ar---------- Ardilla	2w	Slight	Moderate	Slight	Longleaf pine----------	78	Longleaf pine, slash pine, yellow-poplar.
					Slash pine----------	89	
					Sweetgum----------	90	
					Water oak----------	90	
Bk:*							
Bibb----------	2w	Slight	Severe	Severe	Loblolly pine----------	95	Eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
					Sweetgum----------	90	
					Water oak----------	90	
Kinston----------	1w	Slight	Severe	Severe	Loblolly pine----------	100	Loblolly pine, slash pine, American sycamore, yellow-poplar, eastern cottonwood, cherrybark oak, green ash, sweetgum.
					Sweetgum----------	95	
					White oak----------	90	
					Eastern cottonwood-----	100	
					Cherrybark oak---------	95	
Cc:*							
Chewacla----------	1w	Slight	Moderate	Moderate	Loblolly pine----------	96	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum, eastern white pine, green ash.
					Yellow-poplar----------	104	
					American sycamore------	90	
					Sweetgum----------	97	
					Water oak----------	86	
					Eastern cottonwood-----	100	
					Green ash----------	97	
					Southern red oak-------	90	
Chastain----------	2w	Slight	Severe	Severe	Sweetgum----------	94	Loblolly pine, American sycamore, sweetgum, cherrybark oak.
					Water oak----------	89	
					Eastern cottonwood-----	90	
					Green ash----------	88	
					Loblolly pine----------	90	
					Water tupelo----------	---	
					White oak----------	---	
					Southern red oak-------	---	
					Baldcypress----------	---	
Cg:*							
Chewacla----------	1w	Slight	Moderate	Moderate	Loblolly pine----------	96	Loblolly pine, slash pine, American sycamore, yellow-poplar, sweetgum, eastern white pine, green ash.
					Yellow-poplar----------	104	
					American sycamore------	90	
					Sweetgum----------	97	
					Water oak----------	86	
					Eastern cottonwood-----	100	
					Green ash----------	97	
					Southern red oak-------	90	
Congaree----------	1o	Slight	Slight	Slight	Sweetgum----------	100	Loblolly pine, slash pine, yellow-poplar, American sycamore, black walnut, cherrybark oak, eastern cottonwood, sweetgum.
					Yellow-poplar----------	107	
					Cherrybark oak---------	107	
					Loblolly pine----------	90	
					Eastern cottonwood-----	107	
					American sycamore------	89	
					Black walnut----------	100	
					Scarlet oak----------	100	
					Willow oak----------	95	

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	Trees to plant
CnB,* CnC2:* Cowarts	2o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	86 86 67	Loblolly pine, slash pine.
Nankin	3o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	80 80 70	Loblolly pine, slash pine.
DoA, DoB, DoC Dothan	2o	Slight	Slight	Slight	Slash pine Longleaf pine Loblolly pine	89 75 90	Slash pine, loblolly pine, longleaf pine.
EuB, EuD Eustis	3s	Slight	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	85 85 65	Slash pine, loblolly pine.
FaB, FaC2 Faceville	3o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	82 80 65	Loblolly pine, slash pine.
FsB, FsC Fuquay	3s	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	83 85 75	Slash pine, longleaf pine.
Gr Grady	4w	Slight	Severe	Severe	Baldcypress Black gum Water oak	68 65 65	
GsB, GsC2 Greenville	3o	Slight	Slight	Slight	Loblolly pine Longleaf pine Slash pine	85 70 85	Loblolly pine, slash pine.
LaB, LaD Lakeland	4s	Slight	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	75 75 60	Slash pine, loblolly pine.
LmB, LmC Lucy	3s	Slight	Moderate	Moderate	Slash pine Longleaf pine Loblolly pine	85 74 85	Slash pine, longleaf pine, loblolly pine.
MaB Marlboro	3o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	82 80 62	Slash pine, loblolly pine.
Mn Mascotte	3w	Slight	Moderate	Moderate	Slash pine Loblolly pine Longleaf pine	85 85 72	Slash pine, loblolly pine.
Oc Ochlockonee	1o	Slight	Slight	Slight	Eastern cottonwood Loblolly pine Yellow-poplar Slash pine Sweetgum Water oak	100 102 116 102 95 80	Loblolly pine, yellow-poplar, eastern cottonwood.
Od Ocilla	3w	Slight	Moderate	Moderate	Loblolly pine Slash pine Longleaf pine	85 85 75	Loblolly pine, slash pine.
OrA, OrB, OrE, OsC2, OsD2 Orangeburg	2o	Slight	Slight	Slight	Loblolly pine Slash pine Longleaf pine	86 86 77	Slash pine, loblolly pine.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Important trees	Site index	
Pe---------- Pelham	2w	Slight	Severe	Severe	Slash pine----------	90	Slash pine, loblolly pine.
					Loblolly pine----------	90	
					Longleaf pine----------	80	
					Sweetgum----------	80	
					Blackgum----------	80	
					Water oak----------	80	
Ps---------- Persanti	2w	Slight	Moderate	Moderate	Loblolly pine----------	90	Loblolly pine, slash pine, sweetgum, yellow-poplar.
					Shortleaf pine----------	80	
					Water oak----------	90	
					Sweetgum----------	90	
Ra---------- Rains	2w	Slight	Severe	Severe	Loblolly pine----------	94	Loblolly pine, slash pine, sweetgum, American sycamore.
					Slash pine----------	91	
					Sweetgum----------	90	
ReB, ReC2---------- Red Bay	2o	Slight	Slight	Slight	Loblolly pine----------	90	Loblolly pine, slash pine.
					Slash pine----------	90	
					Longleaf pine----------	77	
SuB, SuD---------- Susquehanna	3c	Slight	Moderate	Slight	Loblolly pine----------	78	Loblolly pine, shortleaf pine.
					Shortleaf pine----------	70	
TfB, TsC2---------- Tifton	2o	Slight	Slight	Slight	Loblolly pine----------	86	Loblolly pine, slash pine.
					Slash pine----------	86	
					Longleaf pine----------	72	
VaC,* VaD:* Vaucluse----------	3o	Slight	Slight	Slight	Loblolly pine----------	76	Loblolly pine, slash pine.
Ailey----------	4s	Slight	Moderate	Moderate	Slash pine----------	70	Slash pine, longleaf pine.
					Longleaf pine----------	60	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
AeC--- Ailey	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
Ar--- Ardilla	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.
Bk:*				
Bibb---	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Kinston---	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.	Severe: wetness, floods.
Cc:*				
Chewacla---	Severe: floods, wetness.	Moderate: wetness, floods.	Severe: wetness, floods.	Moderate: wetness, floods.
Chastain---	Severe: floods, wetness.	Severe: wetness.	Severe: floods, wetness.	Severe: wetness.
Cg:*				
Chewacla---	Severe: floods, wetness.	Moderate: wetness, floods.	Severe: wetness, floods.	Moderate: wetness, floods.
Congaree---	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
CnB:*				
Cowarts---	Slight---	Slight---	Moderate: slope.	Slight.
Nankin---	Slight---	Slight---	Moderate: slope.	Slight.
CnC2:*				
Cowarts---	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Nankin---	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
DoA--- Dothan	Slight---	Slight---	Slight---	Slight.
DoB--- Dothan	Slight---	Slight---	Moderate: slope.	Slight.
DoC--- Dothan	Slight---	Slight---	Severe: slope.	Slight.
EuB--- Eustis	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
EuD--- Eustis	Moderate: too sandy, slope.	Moderate: too sandy, slope.	Severe: slope, too sandy.	Moderate: too sandy.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
FaB---- Faceville	Slight	Slight	Moderate: slope.	Slight.
FaC2---- Faceville	Slight	Slight	Severe: slope.	Slight.
FsB---- Fuquay	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
FsC---- Fuquay	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.
Gr---- Grady	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
GsB---- Greenville	Slight	Slight	Moderate: slope.	Slight.
GsC2---- Greenville	Slight	Slight	Severe: slope.	Slight.
LaB---- Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
LaD---- Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy, slope.	Severe: too sandy.
LmB---- Lucy	Moderate: too sandy.	Moderate: too sandy.	Moderate: too sandy, slope.	Moderate: too sandy.
LmC---- Lucy	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.
MaB---- Marlboro	Slight	Slight	Moderate: slope.	Slight.
Mn---- Mascotte	Severe: wetness.	Severe: wetness.	Severe: wetness, too sandy.	Severe: wetness.
Oc---- Ochlockonee	Severe: floods.	Moderate: floods.	Severe: floods.	Moderate: floods.
Od---- Ocilla	Moderate: wetness, too sandy.	Moderate: wetness.	Moderate: wetness, too sandy.	Moderate: wetness.
OrA---- Orangeburg	Slight	Slight	Slight	Slight.
OrB---- Orangeburg	Slight	Slight	Moderate: slope.	Slight.
OrE, OsD2---- Orangeburg	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
OsC2---- Orangeburg	Slight	Slight	Severe: slope.	Slight.

See footnote at end of table.

TABLE 8.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
Pe--- Pelham	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.	Moderate: too sandy, floods.
Ps--- Persanti	Moderate: percs slowly, wetness.	Slight---	Moderate: percs slowly, wetness.	Slight.
Ra--- Rains	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Severe: wetness.
ReB--- Red Bay	Slight---	Slight---	Moderate: slope.	Slight.
ReC2--- Red Bay	Slight---	Slight---	Severe: slope.	Slight.
SuB--- Susquehanna	Moderate: percs slowly, wetness.	Moderate: wetness.	Moderate: percs slowly, wetness.	Moderate: wetness.
SuD--- Susquehanna	Moderate: percs slowly, wetness.	Moderate: wetness.	Severe: slope.	Moderate: wetness.
TfB--- Tifton	Slight---	Slight---	Moderate: slope, small stones.	Slight.
TsC2--- Tifton	Slight---	Slight---	Severe: slope.	Slight.
Up:* Udorthents. Pits.				
VaC:* Vaucluse---	Moderate: percs slowly, too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Slight.
Ailey---	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
VaD:* Vaucluse---	Moderate: percs slowly, too sandy.	Moderate: too sandy.	Severe: slope.	Slight.
Ailey---	Moderate: too sandy.	Moderate: too sandy.	Severe: slope.	Moderate: too sandy.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AeC--Ailey	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Fair	Poor	Very poor.
Ar--Ardilla	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
Bk:*										
Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Kinston	Very poor	Poor	Poor	Poor	Poor	Good	Fair	Poor	Poor	Fair.
Cc:*										
Chewacla	Poor	Fair	Fair	Good	Good	Poor	Very poor	Fair	Good	Very poor.
Chastain	Very poor	Poor	Poor	Fair	Poor	Good	Good	Poor	Fair	Good.
Cg:*										
Chewacla	Poor	Fair	Fair	Good	Good	Poor	Very poor	Fair	Good	Very poor.
Congaree	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
CnB:*										
Cowarts	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor.
Nankin	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor.
CnC2:*										
Cowarts	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
Nankin	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
DoA, DoB, DoC--Dothan	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
EuB, EuD--Eustis	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor.
FaB--Faceville	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
FaC2--Faceville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
FsB--Fuquay	Fair	Fair	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor.
FsC--Fuquay	Poor	Fair	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor.
Gr--Grady	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
GsB--Greenville	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
GsC2--Greenville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
LaB, LaD---------- Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor.
LmB, LmC---------- Lucy	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor.
MaB---------- Marlboro	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
Mn---------- Mascotte	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor.
Oc---------- Ochlockonee	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor.
Od---------- Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair.
OrA, OrB---------- Orangeburg	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor.
OrE, OsC2, OsD2---- Orangeburg	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
Pe---------- Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair.
Ps---------- Persanti	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Ra---------- Rains	Very poor	Very poor	Very poor	Fair	Fair	Good	Good	Very poor	Poor	Good.
ReB---------- Red Bay	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor.
ReC2---------- Red Bay	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor.
SuB, SuD---------- Susquehanna	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
TfB---------- Tifton	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
TsC2---------- Tifton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor.
Up:* Udorthents.										
Pits.										
VaC:* Vaucluse----------	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor.
Ailey----------	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Fair	Poor	Very poor.
VaD:* Vaucluse----------	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor.

See footnote at end of table.

TABLE 9.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
VaD:* Ailey	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
AeC---------- Ailey	Moderate: cutbanks cave.	Slight----------	Slight----------	Moderate: slope.	Slight.
Ar---------- Ardilla	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Bk:* Bibb----------	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Kinston----------	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.
Co:* Chewacla----------	Severe: wetness, floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.
Chastain----------	Severe: wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Cg:* Chewacla----------	Severe: wetness, floods.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: wetness, floods.
Congaree----------	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
CnB:* Cowarts----------	Slight----------	Slight----------	Slight----------	Slight----------	Slight.
Nankin----------	Moderate: too clayey.	Slight----------	Slight----------	Slight----------	Slight.
CnC2:* Cowarts----------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Nankin----------	Moderate: too clayey, slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
DoA, DoB---------- Dothan	Slight----------	Slight----------	Moderate: wetness.	Slight----------	Slight.
DoC---------- Dothan	Slight----------	Slight----------	Moderate: wetness.	Moderate: slope.	Slight.
EuB---------- Eustis	Severe: cutbanks cave.	Slight----------	Slight----------	Moderate: slope.	Slight.
EuD---------- Eustis	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
FaB---------- Faceville	Moderate: too clayey.	Slight----------	Slight----------	Slight----------	Slight.
FaC2---------- Faceville	Moderate: too clayey.	Slight----------	Slight----------	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
FsB---- Fuquay	Moderate: cutbanks cave.	Slight----	Slight----	Slight----	Slight.
FsC---- Fuquay	Moderate: cutbanks cave.	Slight----	Slight----	Moderate: slope.	Slight.
Gr---- Grady	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
GsB---- Greenville	Moderate: too clayey.	Slight----	Slight----	Slight----	Slight.
GsC2---- Greenville	Moderate: too clayey.	Slight----	Slight----	Moderate: slope.	Slight.
LaB---- Lakeland	Severe: cutbanks cave.	Slight----	Slight----	Moderate: slope.	Slight.
LaD---- Lakeland	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
LmB---- Lucy	Moderate: cutbanks cave.	Slight----	Slight----	Slight----	Slight.
LmC---- Lucy	Moderate: cutbanks cave.	Slight----	Slight----	Moderate: slope.	Slight.
MaB---- Marlboro	Moderate: too clayey.	Slight----	Slight----	Slight----	Slight.
Mn---- Mascotte	Severe: wetness, cutbanks cave.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Oc---- Ochlockonee	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.
Od---- Ocilla	Severe: wetness, cutbanks cave.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.
OrA, OrB---- Orangeburg	Slight----	Slight----	Slight----	Slight----	Slight.
OrE, OsD2---- Orangeburg	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
OsC2---- Orangeburg	Slight----	Slight----	Slight----	Moderate: slope.	Slight.
Pe---- Pelham	Severe: wetness, cutbanks cave.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.
Ps---- Persanti	Moderate: wetness, too clayey.	Moderate: shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Moderate: shrink-swell.
Ra---- Rains	Severe: wetness.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness, floods.	Severe: wetness.
ReB---- Red Bay	Slight----	Slight----	Slight----	Slight----	Slight.
ReC2---- Red Bay	Slight----	Slight----	Slight----	Moderate: slope.	Slight.

See footnote at end of table.

TABLE 10.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets
SuB, SuD---------- Susquehanna	Severe: too clayey, wetness.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: low strength, corrosive, shrink-swell.	Severe: low strength, shrink-swell.
TfB---------- Tifton	Slight----------	Slight----------	Moderate: wetness.	Slight----------	Slight.
TsC2---------- Tifton	Slight----------	Slight----------	Moderate: wetness.	Moderate: slope.	Slight.
Up:* Udorthents.					
Pits.					
VaC:* Vaucluse----------	Slight----------	Slight----------	Slight----------	Moderate: slope.	Slight.
Ailey----------	Moderate: cutbanks cave.	Slight----------	Slight----------	Moderate: slope.	Slight.
VaD:* Vaucluse----------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.
Ailey----------	Moderate: slope, cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AeC--- Ailey	Severe: percs slowly.	Severe: slope.	Slight---	Slight---	Good.
Ar--- Ardilla	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Good.
Bk:*					
Bibb---	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Kinston---	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Poor: wetness.
Cc:*					
Chewacla---	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Chastain---	Severe: floods, wetness, percs slowly.	Severe: floods, wetness.	Severe: floods, wetness, too clayey.	Severe: floods, wetness.	Poor: wetness.
Cg:*					
Chewacla---	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Severe: floods, wetness.	Good.
Congaree---	Severe: floods.	Severe: floods.	Severe: floods.	Severe: floods.	Good.
CnB:*					
Cowarts---	Severe: percs slowly.	Moderate: slope.	Slight---	Slight---	Fair: thin layer.
Nankin---	Severe: percs slowly.	Moderate: slope.	Slight---	Slight---	Fair: too clayey.
CnC2:*					
Cowarts---	Severe: percs slowly.	Severe: slope.	Slight---	Slight---	Fair: thin layer, slope.
Nankin---	Severe: percs slowly.	Severe: slope.	Slight---	Moderate: slope.	Fair: too clayey, slope.
DoA--- Dothan	Moderate: wetness, percs slowly.	Moderate: seepage.	Slight---	Slight---	Good.
DoB, DoC--- Dothan	Moderate: wetness, percs slowly.	Moderate: slope, seepage.	Slight---	Slight---	Good.
EuB--- Eustis	Slight---	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
EuD---- Eustis	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too sandy, slope.
FaB---- Faceville	Slight----	Moderate: slope, seepage.	Moderate: too clayey.	Slight----	Fair: too clayey.
FaC2---- Faceville	Slight----	Severe: slope.	Moderate: too clayey.	Slight----	Fair: too clayey.
FsB, FsC---- Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight----	Slight----	Good.
Gr---- Grady	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: ponding, too clayey.
GsB---- Greenville	Slight----	Moderate: seepage, slope.	Moderate: too clayey.	Slight----	Fair: too clayey.
GsC2---- Greenville	Slight----	Severe: slope.	Moderate: too clayey.	Slight----	Fair: too clayey.
LaB---- Lakeland	Slight----	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
LaD---- Lakeland	Moderate: slope.	Severe: seepage, slope.	Severe: seepage, too sandy.	Severe: seepage.	Poor: too sandy, seepage.
LmB, LmC---- Lucy	Slight----	Severe: seepage.	Slight----	Slight----	Good.
MaB---- Marlboro	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight----	Fair: too clayey.
Mn---- Mascotte	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: too sandy, wetness.
Oc---- Ochlockonee	Severe: floods.	Severe: floods, seepage.	Severe: floods, seepage, wetness.	Severe: floods.	Good.
Od---- Ocilla	Severe: wetness.	Severe: wetness, seepage.	Severe: wetness.	Severe: wetness, seepage.	Fair: wetness.
OrA---- Orangeburg	Slight----	Moderate: seepage.	Slight----	Slight----	Good.
OrB, OsC2---- Orangeburg	Slight----	Moderate: slope, seepage.	Slight----	Slight----	Good.
OrE, OsD2---- Orangeburg	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.	Fair: slope.
Pe---- Pelham	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Severe: floods, wetness.	Severe: floods, wetness, seepage.	Poor: wetness.

See footnote at end of table.

TABLE 11.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ps---------- Persanti	Severe: wetness, percs slowly.	Slight----------	Moderate: wetness, too clayey.	Moderate: wetness.	Poor: too clayey.
Ra---------- Rains	Severe: wetness.	Severe: wetness, floods.	Severe: wetness.	Severe: wetness.	Poor: wetness.
ReB, ReC2---------- Red Bay	Slight----------	Moderate: seepage, slope.	Slight----------	Slight----------	Good.
SuB---------- Susquehanna	Severe: percs slowly.	Moderate: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
SuD---------- Susquehanna	Severe: percs slowly.	Severe: slope.	Severe: too clayey, wetness.	Moderate: wetness.	Poor: too clayey.
TfB, TsC2---------- Tifton	Moderate: percs slowly, wetness.	Moderate: slope, seepage.	Slight----------	Slight----------	Fair: small stones.
Up:* Udorthents. Pits.					
VaC:* Vaucluse----------	Severe: percs slowly.	Moderate: slope.	Slight----------	Slight----------	Good.
Ailey----------	Severe: percs slowly.	Moderate: slope.	Slight----------	Slight----------	Good.
VaD:* Vaucluse----------	Severe: percs slowly.	Severe: slope.	Slight----------	Moderate: slope.	Fair: slope.
Ailey----------	Severe: percs slowly.	Severe: slope.	Slight----------	Moderate: slope.	Fair: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and "poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AeC--- Ailey	Good	Poor: excess fines.	Unsuited: excess fines.	Fair: too sandy.
Ar--- Ardilla	Fair: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too clayey.
Bk:* Bibb	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Kinston	Poor: wetness.	Poor: excess fines.	Unsuited: excess fines.	Poor: wetness.
Cc:* Chewacla	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Chastain	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
Cg:* Chewacla	Poor: wetness, low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
Congaree	Fair: low strength.	Unsuited: excess fines.	Unsuited: excess fines.	Good.
CnB:* Cowarts	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Nankin	Good	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
CnC2:* Cowarts	Good	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
Nankin	Good	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
DoA, DoB, DoC--- Dothan	Good	Poor: excess fines.	Unsuited: excess fines.	Fair: thin layer, too sandy.
EuB, EuD--- Eustis	Good	Poor: excess fines.	Unsuited: excess fines.	Poor: too sandy.
FaB, FaC2--- Faceville	Good	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
FsB, FsC--- Fuquay	Good	Poor: excess fines.	Unsuited: excess fines.	Fair: too sandy.
Gr--- Grady	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness, thin layer.

See footnote at end of table.

TABLE 12.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
GsB, GsC2---------- Greenville	Good----------	Poor: excess fines.	Unsuited: excess fines.	Poor: thin layer.
LaB, LaD---------- Lakeland	Good----------	Good----------	Unsuited: excess fines.	Poor: too sandy.
LmB, LmC---------- Lucy	Good----------	Fair: excess fines, thin layer.	Unsuited: excess fines.	Fair: too sandy.
MaB---------- Marlboro	Good----------	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
Mn---------- Mascotte	Good----------	Poor: thin layer.	Unsuited: excess fines.	Poor: too sandy, wetness.
Oc---------- Ochlockonee	Good----------	Poor: excess fines.	Unsuited: excess fines.	Good.
Od---------- Ocilla	Fair: wetness.	Poor: excess fines.	Unsuited: excess fines.	Fair: too sandy.
OrA, OrB, OsC2--------- Orangeburg	Good----------	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer.
OsD2, OrE---------- Orangeburg	Good----------	Unsuited: excess fines.	Unsuited: excess fines.	Fair: thin layer, slope.
Pe---------- Pelham	Poor: wetness.	Poor: excess fines.	Unsuited: excess fines.	Poor: wetness.
Ps---------- Persanti	Fair: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: thin layer.
Ra---------- Rains	Poor: wetness.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: wetness.
ReB, ReC2---------- Red Bay	Good----------	Poor: excess fines.	Unsuited: excess fines.	Fair: thin layer.
SuB, SuD---------- Susquehanna	Poor: shrink-swell.	Unsuited: excess fines.	Unsuited: excess fines.	Poor: too clayey.
TfB, TsC2---------- Tifton	Good----------	Unsuited: excess fines.	Unsuited: excess fines.	Fair: small stones.
Up:* Udorthents. Pits.				
VaC,* VaD:* Vaucluse----------	Good----------	Unsuited: excess fines.	Unsuited: excess fines.	Fair: too sandy.
Ailey----------	Good----------	Poor: excess fines.	Unsuited: excess fines.	Fair: too sandy.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AeC---- Ailey	Slight----	Moderate: piping.	Not needed----	Droughty, complex slope.	Cemented pan, complex slope.	Droughty.
Ar---- Ardilla	Moderate: seepage.	Slight----	Favorable----	Favorable----	Not needed----	Not needed.
Bk:* Bibb----	Moderate: seepage.	Severe: piping, wetness.	Floods----	Floods, wetness.	Not needed----	Wetness.
Kinston----	Moderate: seepage.	Severe: wetness.	Floods----	Floods, wetness.	Not needed----	Wetness.
Cc:* Chewacla----	Moderate: seepage.	Severe: hard to pack, piping, wetness.	Poor outlets, floods.	Wetness, floods.	Not needed----	Wetness.
Chastain----	Slight----	Severe: wetness, hard to pack.	Floods, percs slowly.	Wetness, percs slowly, slow intake.	Not needed----	Wetness, percs slowly.
Cg:* Chewacla----	Moderate: seepage.	Severe: hard to pack, piping, wetness.	Poor outlets, floods.	Wetness, floods.	Not needed----	Wetness.
Congaree----	Moderate: seepage.	Moderate: compressible, piping.	Not needed----	Floods----	Not needed----	Not needed.
CnB:* Cowarts----	Slight----	Slight----	Not needed----	Percs slowly---	Percs slowly---	Percs slowly.
Nankin----	Moderate: seepage.	Slight----	Not needed----	Complex slope, percs slowly.	Favorable----	Favorable.
CnC2:* Cowarts----	Slight----	Slight----	Not needed----	Slope, percs slowly.	Percs slowly---	Slope, percs slowly.
Nankin----	Moderate: seepage.	Slight----	Not needed----	Complex slope, percs slowly.	Favorable----	Favorable.
DoA---- Dothan	Slight----	Slight----	Not needed----	Favorable----	Not needed----	Favorable.
DoB---- Dothan	Slight----	Slight----	Not needed----	Favorable----	Favorable----	Favorable.
DoC---- Dothan	Slight----	Slight----	Not needed----	Slope----	Favorable----	Favorable.
EuB, EuD---- Eustis	Severe: seepage.	Moderate: seepage.	Not needed----	Droughty, fast intake, slope.	Slope----	Droughty, slope.
FaB---- Faceville	Moderate: seepage.	Slight----	Not needed----	Favorable----	Favorable----	Favorable.
FaC2---- Faceville	Moderate: seepage.	Slight----	Not needed----	Slope----	Favorable----	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
FsB, FsC---------- Fuquay	Moderate: seepage.	Moderate: piping.	Not needed-----	Fast intake----	Too sandy------	Droughty.
Gr---------- Grady	Slight---------	Severe: wetness.	Ponding, percs slowly.	Ponding, percs slowly.	Not needed-----	Not needed.
GsC2---------- Greenville	Moderate: seepage.	Slight---------	Not needed-----	Slope----------	Slope----------	Slope.
GsB---------- Greenville	Moderate: seepage.	Slight---------	Not needed-----	Favorable------	Favorable------	Favorable.
LaB, LaD---------- Lakeland	Severe: seepage.	Severe: seepage, piping.	Not needed-----	Droughty, seepage, fast intake.	Not needed-----	Not needed.
LmB, LmC---------- Lucy	Moderate: seepage.	Moderate: piping.	Not needed-----	Slope, fast intake.	Too sandy------	Droughty.
MaB---------- Marlboro	Moderate: seepage.	Slight---------	Not needed-----	Favorable------	Favorable------	Favorable.
Mn---------- Mascotte	Moderate: seepage.	Moderate: seepage, wetness.	Cutbanks cave	Wetness, fast intake.	Not needed-----	Not needed.
Oc---------- Ochlockonee	Severe: seepage.	Moderate: seepage, piping.	Floods---------	Floods---------	Not needed-----	Favorable.
Od---------- Ocilla	Severe: seepage.	Severe: piping, wetness.	Favorable------	Fast intake----	Not needed-----	Not needed.
OrA---------- Orangeburg	Moderate: seepage.	Moderate: piping.	Not needed-----	Favorable------	Not needed-----	Favorable.
OrB---------- Orangeburg	Moderate: seepage.	Moderate: piping.	Not needed-----	Favorable------	Favorable------	Favorable.
OrE, OsD2--------- Orangeburg	Moderate: seepage.	Moderate: piping.	Not needed-----	Slope----------	Slope----------	Slope.
OsC2---------- Orangeburg	Moderate: seepage.	Moderate: piping.	Not needed-----	Slope----------	Favorable------	Favorable.
Pe---------- Pelham	Severe: seepage.	Severe: piping, wetness.	Floods, wetness.	Floods, wetness.	Not needed-----	Not needed.
Ps---------- Persanti	Slight---------	Moderate: piping.	Wetness, percs slowly.	Wetness, percs slowly.	Not needed-----	Percs slowly, wetness.
Ra---------- Rains	Moderate: seepage.	Severe: wetness.	Favorable------	Wetness, fast intake.	Not needed-----	Wetness.
ReB---------- Red Bay	Moderate: seepage.	Slight---------	Not needed-----	Favorable------	Favorable------	Favorable.
ReC2---------- Red Bay	Severe: slope.	Slight---------	Not needed-----	Slope----------	Favorable------	Favorable.
SuB, SuD---------- Susquehanna	Slight---------	Moderate: hard to pack, shrink-swell.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.	Percs slowly, slope.
TfB---------- Tifton	Moderate: seepage.	Slight---------	Not needed-----	Favorable------	Favorable------	Favorable.

See footnote at end of table.

TABLE 13.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
TsC2---------- Tifton	Moderate: seepage.	Slight---------	Not needed-----	Slope----------	Favorable------	Favorable.
Up:* Udorthents.						
Pits.						
VaC,* VaD:* Vaucluse---------	Slight---------	Moderate: piping.	Not needed-----	Complex slope	Complex slope, percs slowly.	Percs slowly.
Ailey----------	Slight---------	Moderate: piping.	Not needed-----	Droughty, complex slope.	Cemented pan, complex slope.	Droughty.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AeC----------	0-22	Loamy sand------	SM, SP-SM	A-2, A-3	0	85-100	75-100	50-80	5-20	---	NP
Ailey	22-38	Sandy loam, sandy clay loam.	SM, SC	A-2, A-4, A-6	0	90-100	75-100	60-90	30-40	30-40	8-16
	38-70	Sandy loam, sandy clay loam.	SM, SC	A-2, A-4, A-6	0	90-100	75-100	55-90	20-40	28-40	8-14
Ar----------	0-10	Loamy sand------	SM	A-2	0	98-100	95-100	80-90	20-35	---	NP
Ardilla	10-38	Sandy clay loam	SM, SM-SC, SC	A-2, A-4	0	98-100	95-100	75-90	30-45	<30	NP-8
	38-65	Sandy clay loam	SM, SM-SC, SC	A-2, A-4	0	95-100	90-100	70-90	35-50	<35	NP-10
Bk:*											
Bibb----------	0-49	Sandy loam------	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	49-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Kinston----------	0-11	Sandy loam------	SM, SC, SM-SC	A-2, A-4	0	100	98-100	55-80	25-50	<25	NP-8
	11-52	Loam, clay loam, sandy clay loam.	CL	A-4, A-6, A-7	0	100	95-100	75-100	60-95	20-45	8-22
	52-65	Variable--------	---	---	---	---	---	---	---	---	---
Ce:*											
Chewacla----------	0-6	Loam------------	ML	A-4, A-5, A-6, A-7	0	98-100	95-100	70-100	55-90	36-50	4-18
	6-18	Silt loam, silty clay loam, clay loam.	ML, MH	A-4, A-5, A-6, A-7	0	96-100	95-100	80-100	51-98	36-56	4-20
	18-50	Sandy clay loam, loam, sandy loam.	SM, CL-ML, SM-SC, ML	A-4	0	96-100	95-100	60-80	36-70	<35	NP-7
	50-65	Variable--------	---	---	---	---	---	---	---	---	---
Chastain----------	0-6	Loam------------	ML, CL, CL-ML	A-4, A-6, A-7	0	100	100	90-100	70-95	23-45	3-18
	6-65	Silty clay loam, silty clay, clay.	CL, CH, ML, MH	A-6, A-7	0	100	100	95-100	85-98	35-75	12-40
Cg:*											
Chewacla----------	0-6	Loam------------	ML	A-4, A-5, A-6, A-7	0	98-100	95-100	70-100	55-90	36-50	4-18
	6-18	Silt loam, silty clay loam, clay loam.	ML, MH	A-4, A-5, A-6, A-7	0	96-100	95-100	80-100	51-98	36-56	4-20
	18-50	Sandy clay loam, loam, sandy loam.	SM, CL-ML, SM-SC, ML	A-4	0	96-100	95-100	60-80	36-70	<35	NP-7
	50-65	Variable--------	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Cg:*											
Congaree	0-19	Loam	SM, SM-SC	A-2, A-4	0	95-100	95-100	70-100	20-50	<30	NP-7
	19-68	Silty clay loam, fine sandy loam, loam.	SM, SC, ML, CL	A-4, A-6, A-7	0	95-100	95-100	70-100	40-90	25-50	4-22
	68-75	Variable	---	---	---	---	---	---	---	---	---
CnB:*											
Cowarts	0-6	Loamy sand	SM	A-2	0	90-100	85-100	50-80	13-30	---	NP
	6-20	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	90-100	60-90	23-45	20-40	NP-15
	20-28	Sandy clay loam, sandy clay.	SM-SC, SM, SC	A-6, A-7	0	95-100	90-100	60-90	25-50	30-54	11-23
	28-65	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-53	5-20
Nankin	0-5	Loamy sand	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	5-8	Sandy clay loam, sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	75-90	25-45	20-35	4-15
	8-27	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	27-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
CnC2:*											
Cowarts	0-5	Sandy loam	SM, SM-SC	A-2, A-4	0	95-100	90-100	75-90	20-40	<20	NP-5
	5-20	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	90-100	60-90	23-45	20-40	NP-15
	20-28	Sandy clay loam, sandy clay.	SM-SC, SM, SC	A-6, A-7	0	95-100	90-100	60-90	25-50	30-54	11-23
	28-65	Sandy loam, sandy clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6, A-7	0	85-100	80-100	60-95	30-58	25-53	5-20
Nankin	0-5	Sandy loam	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	5-8	Sandy clay loam, sandy loam.	SC, SM, SM-SC	A-2, A-4, A-6	0	97-100	95-100	75-90	25-45	20-35	4-15
	8-27	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	27-65	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
DoA, DoB, DoC-- Dothan	0-6	Loamy sand	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	6-35	Sandy clay loam, sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-45	<40	NP-15
	35-65	Sandy clay loam, sandy clay.	SM-SC, SC, SM	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-50	25-45	4-18

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
EuB, EuD--Eustis	0-28	Loamy sand	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-16	---	NP
	28-70	Loamy fine sand, loamy sand.	SM	A-2-4	0	100	100	90-100	15-25	---	NP
FaB--Faceville	0-6	Sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-5
	6-15	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	15-65	Sandy clay, clay, clay loam.	CL, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
FaC2--Faceville	0-4	Sandy loam	SM, SM-SC	A-2, A-4	0	90-100	85-100	72-97	17-38	<25	NP-5
	4-11	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	11-65	Sandy clay, clay, clay loam.	CL, SC	A-6, A-7	0	98-100	95-100	75-99	45-72	25-43	11-23
FsB, FsC--Fuquay	0-23	Loamy sand	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	23-52	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	85-100	85-100	60-80	23-45	<25	NP-13
	52-70	Sandy clay loam	SC, CL	A-2, A-4, A-6	0	95-100	90-100	60-93	28-55	20-39	8-25
Gr--Grady	0-7	Loam	SM, ML, CL-ML, SM-SC	A-4, A-6	0	100	99-100	85-100	40-75	<30	NP-15
	7-12	Sandy clay loam	CL	A-6	0	100	100	90-100	51-80	25-40	11-20
	12-65	Clay, sandy clay	CL, ML, CH	A-6, A-7	0	100	100	90-100	55-90	30-51	12-25
GsB--Greenville	0-6	Sandy loam	SM, SC, SM-SC, CL-ML	A-2, A-4	0	95-100	90-100	65-85	30-55	<25	NP-10
	6-70	Sandy clay loam, sandy clay, clay.	CL, SC	A-6, A-7	0	98-100	95-100	80-95	40-80	30-47	11-25
GsC2--Greenville	0-4	Sandy loam	SM, SC, SM-SC, CL-ML	A-2, A-4	0	95-100	90-100	65-80	30-55	<25	NP-10
	4-70	Sandy clay loam, sandy clay, clay.	CL, SC	A-6, A-7	0	98-100	95-100	80-95	40-80	30-47	11-25
LaB, LaD--Lakeland	0-52	Sand	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	52-85	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP
LmB, LmC--Lucy	0-23	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	50-87	<30	---	NP
	23-36	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	<30	NP-15
	36-70	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	5-20
MaB--Marlboro	0-6	Sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0	98-100	95-100	75-100	25-60	<35	NP-7
	6-65	Sandy clay, clay loam, clay.	CL, ML, SM, SC	A-4, A-6, A-7	0	98-100	95-100	78-100	51-70	25-48	8-20

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Mn---------- Mascotte	0-15	Sand----------	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	15-20	Fine sand, sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	20-36	Fine sand, sand, loamy fine sand.	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	36-65	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-2, A-4, A-6	0	100	100	85-100	19-45	<38	NP-15
Oc---------- Ochlockonee	0-42	Sandy loam------	SM, ML, SM-SC	A-4	0	100	95-100	95-100	36-80	<26	NP-5
	42-65	Loamy sand, sandy loam, silt loam.	SM, ML, CL, SC	A-4, A-2	0	100	95-100	85-99	13-80	<32	NP-9
Od---------- Ocilla	0-26	Loamy sand------	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
	26-65	Sandy loam, sandy clay loam.	SM, CL, SC	A-2, A-4, A-6	0	100	95-100	80-100	30-55	<40	NP-18
OrA, OrB, OrE------- Orangeburg	0-6	Loamy sand------	SM	A-2	0	98-100	95-100	60-87	14-28	---	NP
	6-10	Sandy loam------	SM	A-2	0	98-100	95-100	70-96	25-35	<30	NP-4
	10-52	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-96	38-55	22-40	8-19
	52-65	Sandy clay loam, sandy clay.	SC, CL	A-6, A-4	0	98-100	95-100	70-97	40-65	25-40	8-21
OsC2, OsD2---------- Orangeburg	0-5	Sandy loam------	SM	A-2	0	98-100	95-100	75-95	20-35	---	NP
	5-48	Sandy clay loam	SC, CL	A-6, A-4	0	98-100	95-100	71-91	38-55	22-40	8-19
	48-65	Sandy clay loam, sandy clay.	SC, CL	A-6, A-4	0	98-100	95-100	70-97	40-65	25-40	8-21
Pe---------- Pelham	0-28	Loamy sand------	SM	A-2	0	100	95-100	75-90	15-30	---	NP
	28-65	Sandy clay loam, sandy loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	100	95-100	65-90	30-50	15-30	2-12
Ps---------- Persanti	0-15	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	100	95-100	80-98	40-72	<35	NP-7
	15-52	Clay, silty clay	CL, ML, CH, MH	A-6, A-7	0	100	98-100	90-100	65-96	35-80	12-46
	52-80	Clay, clay loam, silty clay loam.	CL, ML, CH, MH	A-4, A-6, A-7	0	100	98-100	90-100	60-90	30-55	8-25
Ra---------- Rains	0-9	Sandy loam------	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	9-44	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	98-100	65-98	30-70	18-40	4-18
	44-65	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	65-98	36-72	18-45	4-22

See footnote at end of table.

TABLE 14.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
ReB----------	0-6	Loamy sand------	SM	A-2	0	100	90-100	51-75	15-30	<10	NP
Red Bay	6-10	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-85	15-50	<35	NP-10
	10-75	Sandy clay loam	SM-SC, SC	A-2, A-4, A-6	0	100	95-100	70-90	24-50	18-40	4-16
ReC2----------	0-4	Sandy loam------	SM	A-2, A-4	0	100	95-100	60-85	15-45	<20	NP-4
Red Bay	4-65	Sandy clay loam	SM-SC, SC	A-2, A-4, A-6	0	100	95-100	70-90	24-50	18-40	4-16
SuB, SuD----------	0-6	Sandy loam------	ML, SM	A-4	0	100	100	65-90	40-55	---	NP
Susquehanna	6-65	Clay, silty clay loam, silty clay.	CH, MH	A-7	0	100	100	88-100	80-98	50-90	28-56
TfB----------	0-6	Loamy sand------	SM, SP-SM, SM-SC	A-2	0	70-97	62-94	53-85	11-27	<25	NP-5
Tifton	6-9	Sandy loam, sandy clay loam.	SM, SM-SC	A-2	0	70-95	56-89	55-89	20-35	<25	NP-7
	9-32	Sandy clay loam	SC, SM-SC, CL, ML	A-2, A-6	0	70-98	65-94	60-89	22-53	22-40	5-20
	32-65	Sandy clay loam	SC, CL, SM	A-2, A-4, A-6, A-7	0	87-100	80-99	50-94	34-55	24-45	8-23
TsC2----------	0-4	Sandy loam------	SM, SM-SC	A-2	0	70-95	60-89	55-89	15-30	<30	NP-6
Tifton	4-27	Sandy clay loam	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	70-95	65-89	60-81	33-53	22-40	5-20
	27-65	Sandy clay loam	SC, CL	A-2, A-6, A-7	0	87-100	80-99	70-94	34-55	24-45	11-21
Up:*											
Udorthents.											
Pits.											
VaC,* VaD:*											
Vaucluse----------	0-10	Loamy sand------	SM, SP-SM	A-2, A-3	0	98-100	90-100	51-70	8-30	---	NP
	10-37	Sandy clay loam, sandy loam.	SC, SM-SC	A-2, A-4, A-6	0	98-100	90-100	51-70	25-50	20-40	5-18
	37-49	Sandy clay loam, sandy loam, sandy clay.	SC, SM-SC	A-2, A-4, A-6	0	95-100	92-100	55-75	20-50	22-40	4-20
	49-65	Sandy loam, sandy clay loam, sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6, A-7	0	98-100	95-100	51-90	20-85	<50	NP-20
Ailey----------	0-22	Loamy sand------	SM, SP-SM	A-2, A-3	0	85-100	75-100	50-80	5-20	---	NP
	22-38	Sandy loam, sandy clay loam.	SM, SC	A-2, A-4, A-6	0	90-100	75-100	60-90	30-40	30-40	8-16
	38-70	Sandy loam, sandy clay loam.	SM, SC	A-2, A-4, A-6	0	90-100	75-100	55-90	20-40	28-40	8-14

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; the symbol > means more than. Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
AeC----------	0-22	6.0-20	0.03-0.05	4.5-6.5	Low----------	0.20	4
Ailey	22-38	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24	
	38-70	0.06-0.2	0.06-0.10	4.5-5.5	Low----------	0.17	
Ar----------	0-10	2.0-6.0	0.08-0.11	4.5-5.5	Low----------	0.24	5
Ardilla	10-38	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28	
	38-65	0.2-0.6	0.10-0.15	4.5-5.5	Low----------	0.28	
Bk:*							
Bibb----------	0-49	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.20	5
	49-65	0.6-2.0	0.12-0.20	4.5-5.5	Low----------	0.37	
Kinston-------	0-11	2.0-6.0	0.13-0.19	4.5-6.0	Low----------	0.24	5
	11-52	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.32	
	52-65	---	---	---	----------	----	
Cc:*							
Chewacla-------	0-6	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	4
	6-18	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32	
	18-50	0.6-2.0	0.12-0.20	4.5-6.5	Low----------	0.28	
	50-65	---	---	---	----------	----	
Chastain-------	0-6	0.2-0.6	0.12-0.18	4.5-5.5	Moderate-------	0.32	5
	6-65	0.06-0.2	0.12-0.16	4.5-5.5	Moderate-------	0.37	
Cg:*							
Chewacla-------	0-6	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	4
	6-18	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32	
	18-50	0.6-2.0	0.12-0.20	4.5-6.5	Low----------	0.28	
	50-65	---	---	---	----------	----	
Congaree-------	0-19	0.6-6.0	0.12-0.18	5.1-7.3	Low----------	0.37	5
	19-68	0.6-2.0	0.12-0.20	5.1-7.3	Low----------	0.37	
	68-75	---	---	---	----------	----	
CnB:*							
Cowarts--------	0-6	2.0-6.0	0.06-0.10	4.5-5.5	Low----------	0.20	3
	6-20	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28	
	20-28	0.2-2.0	0.10-0.16	4.5-5.5	Low----------	0.28	
	28-65	0.06-0.6	0.08-0.12	4.5-5.5	Low----------	0.24	
Nankin---------	0-5	2.0-6.0	0.05-0.08	4.5-5.5	Low----------	0.28	3
	5-8	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24	
	8-27	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24	
	27-65	0.2-0.6	0.10-0.15	4.5-5.5	Low----------	0.24	
CnC2:*							
Cowarts--------	0-5	2.0-6.0	0.08-0.13	4.5-5.5	Low----------	0.24	3
	5-20	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28	
	20-28	0.2-2.0	0.10-0.16	4.5-5.5	Low----------	0.28	
	28-65	0.06-0.6	0.08-0.12	4.5-5.5	Low----------	0.24	
Nankin---------	0-5	2.0-6.0	0.05-0.08	4.5-5.5	Low----------	0.28	3
	5-8	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24	
	8-27	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24	
	27-65	0.2-0.6	0.10-0.15	4.5-5.5	Low----------	0.24	
DoA, DoB, DoC----	0-6	2.0-6.0	0.06-0.10	4.5-5.5	Very low-------	0.20	4
Dothan	6-35	0.6-2.0	0.10-0.14	4.5-5.5	Low----------	0.28	
	35-65	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.28	
EuB, EuD---------	0-28	6.0-20	0.08-0.10	4.5-5.5	Low----------	0.17	5
Eustis	28-70	6.0-20	0.07-0.11	4.5-5.5	Low----------	0.17	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
FaB----------	0-6	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.28	5
Faceville	6-15	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.37	
	15-65	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.37	
FaC2----------	0-4	6.0-20	0.06-0.09	4.5-5.5	Low----------	0.28	5
Faceville	4-11	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.37	
	11-65	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.37	
FsB, FsC----------	0-23	>6.0	0.04-0.09	4.5-5.5	Low----------	0.20	5
Fuquay	23-52	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.20	
	52-70	0.06-0.2	0.10-0.13	4.5-5.5	Low----------	0.20	
Gr----------	0-7	0.6-2.0	0.10-0.18	3.6-5.5	Low----------	0.10	5
Grady	7-12	0.2-0.6	0.10-0.15	3.6-5.5	Low----------	0.10	
	12-65	0.06-0.2	0.12-0.16	3.6-5.5	Moderate-------	0.10	
GsB----------	0-6	0.6-6.0	0.07-0.14	4.5-5.5	Low----------	0.24	5
Greenville	6-70	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.17	
GsC2----------	0-4	0.6-6.0	0.07-0.14	4.5-5.5	Low----------	0.24	5
Greenville	4-70	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.17	
LaB, LaD----------	0-52	>20	0.05-0.08	4.5-6.0	Very low-------	0.17	5
Lakeland	52-85	>20	0.03-0.08	4.5-6.0	Very low-------	----	
LmB, LmC----------	0-23	6.0-20	0.06-0.10	5.1-5.5	Low----------	0.20	5
Lucy	23-36	2.0-6.0	0.10-0.12	4.5-5.5	Low----------	0.24	
	36-70	0.6-2.0	0.12-0.14	4.5-5.5	Low----------	0.28	
MaB----------	0-6	2.0-6.0	0.09-0.14	5.1-6.0	Low----------	0.20	4
Marlboro	6-65	0.6-2.0	0.14-0.18	5.1-6.5	Low----------	0.20	
Mn----------	0-15	6.0-20	0.03-0.08	3.6-5.5	Very low-------	0.20	5
Mascotte	15-20	0.6-2.0	0.10-0.15	3.6-5.5	Very low-------	0.20	
	20-36	6.0-20	0.03-0.08	3.6-5.5	Very low-------	0.20	
	36-65	0.6-2.0	0.10-0.15	3.6-5.5	Low----------	0.32	
Oc----------	0-42	2.0-6.0	0.07-0.14	4.5-5.5	Low----------	0.20	5
Ochlockonee	42-65	2.0-6.0	0.06-0.12	4.5-5.5	Low----------	0.17	
Od----------	0-26	2.0-20	0.05-0.08	4.5-5.5	Low----------	0.17	5
Ocilla	26-65	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24	
OrA, OrB, OrE----	0-6	2.0-6.0	0.06-0.08	4.5-6.0	Low----------	0.10	5
Orangeburg	6-10	2.0-6.0	0.07-0.10	4.5-5.5	Low----------	0.20	
	10-52	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24	
	52-65	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24	
OsC2, OsD2-------	0-5	2.0-6.0	0.07-0.10	4.5-6.0	Low----------	0.17	5
Orangeburg	5-48	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24	
	48-65	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24	
Pe----------	0-28	6.0-20	0.05-0.08	4.5-5.5	Very low-------	0.10	5
Pelham	28-65	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.24	
Ps----------	0-15	0.2-2.0	0.11-0.15	4.5-6.5	Low----------	0.43	5
Persanti	15-52	0.06-0.2	0.12-0.15	3.6-5.5	Moderate-------	0.20	
	52-80	0.06-0.2	0.12-0.15	3.6-5.5	Moderate-------	0.20	
Ra----------	0-9	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.17	5
Rains	9-44	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24	
	44-65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28	
ReB----------	0-6	>6.0	0.06-0.11	4.5-6.0	Low----------	0.10	5
Red Bay	6-10	0.6-6.0	0.10-0.14	4.5-5.5	Low----------	0.15	
	10-75	0.6-2.0	0.10-0.17	4.5-5.5	Low----------	0.17	

See footnote at end of table.

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors	
						K	T
	In	In/hr	In/in	pH			
ReC2----------	0-4	2.0-6.0	0.07-0.14	4.5-6.0	Low----------	0.15	5
Red Bay	4-65	0.6-2.0	0.10-0.17	4.5-5.5	Low----------	0.17	
SuB, SuD----------	0-6	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.43	3
Susquehanna	6-65	<0.06	0.15-0.20	4.5-5.5	High----------	0.32	
TfB----------	0-6	6.0-20	0.03-0.08	4.5-5.5	Low----------	0.05	4
Tifton	6-9	6.0-20	0.08-0.12	4.5-5.5	Low----------	0.24	
	9-32	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24	
	32-65	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.17	
TsC2----------	0-4	6.0-20	0.06-0.10	4.5-5.5	Low----------	0.17	4
Tifton	4-27	0.6-2.0	0.12-0.15	4.5-5.5	Low----------	0.24	
	27-65	0.6-2.0	0.10-0.13	4.5-5.5	Low----------	0.17	
Up:*							
Udorthents.							
Pits.							
VaC,* VaD:*							
Vaucluse----------	0-10	6.0-20	0.04-0.08	4.5-5.5	Low----------	0.17	3
	10-37	0.6-6.0	0.10-0.15	4.5-5.5	Low----------	0.20	
	37-49	0.06-0.2	0.05-0.08	4.0-5.5	Low----------	0.17	
	49-65	2.0-6.0	0.05-0.08	4.0-5.5	Low----------	0.17	
Ailey----------	0-22	6.0-20	0.03-0.05	4.5-6.5	Low----------	0.20	4
	22-38	0.6-2.0	0.09-0.12	4.5-5.5	Low----------	0.24	
	38-70	0.06-0.2	0.06-0.10	4.5-5.5	Low----------	0.17	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--SOIL AND WATER FEATURES

[The definitions of "flooding" and "water table" in the Glossary explain terms such as "rare," "brief," "apparent," and "perched." The symbol < means less than; > means more than; + means ponding. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
AeC--- Ailey	B	None	---	---	>6.0	---	---	Moderate	Moderate.
Ar--- Ardilla	C	None	---	---	1.0-2.0	Apparent	Nov-Apr	High	High.
Bk:*									
Bibb	C	Common	Brief	Dec-May	0.5-1.5	Apparent	Dec-Apr	High	Moderate.
Kinston	D	Frequent	Brief	Nov-Jun	0-1.0	Apparent	Nov-Jun	High	High.
Cc:*									
Chewacla	C	Common	Brief	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	High	Moderate.
Chastain	D	Common	Very long	Dec-Apr	0-1.0	Apparent	Nov-May	High	High.
Cg:*									
Chewacla	C	Common	Brief	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	High	Moderate.
Congaree	B	Frequent	Brief	Nov-Apr	2.5-4.0	Apparent	Nov-Apr	Moderate	Moderate.
CnB,* CnC2:* Cowarts	C	None	---	---	>6.0	---	---	Moderate	Moderate.
Nankin	C	None	---	---	>6.0	---	---	High	High.
DoA, DoB, DoC--- Dothan	B	None	---	---	3.5-4.0	Perched	Jan-Apr	Moderate	Moderate.
EuB, EuD--- Eustis	A	None	---	---	>6.0	---	---	Low	High.
FaB, FaC2--- Faceville	B	None	---	---	>6.0	---	---	Low	Moderate.
FsB, FsC--- Fuquay	B	None	---	---	2.5-4.0	Perched	Jan-Mar	Low	High.
Gr--- Grady	D	None	---	---	+2-1.0	Apparent	Dec-Jun	High	High.
GsB, GsC2--- Greenville	B	None	---	---	>6.0	---	---	Moderate	High.
LaB, LaD--- Lakeland	A	None	---	---	>6.0	---	---	Low	Moderate.
LmB, LmC--- Lucy	A	None	---	---	>6.0	---	---	Low	High.
MaB--- Marlboro	B	None	---	---	>6.0	---	---	High	High.
Mn--- Mascotte	B/D	None	---	---	0-1.0	Apparent	Jun-Sep	High	High.
Oc--- Ochlockonee	B	Occasional	Very brief	Dec-Apr	3.0-4.0	Apparent	Dec-Apr	Low	High.
Od--- Ocilla	C	None	---	---	1.0-2.5	Apparent	Dec-Apr	High	Moderate.

See footnote at end of table.

TABLE 16.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Uncoated steel	Concrete
					Ft				
OrA, OrB, OrE, OsC2, OsD2--- Orangeburg	B	None---	---	---	>6.0	---	---	Moderate	Moderate.
Pe--- Pelham	B/D	Common---	Brief---	Dec-Mar	0.5-1.5	Apparent	Jan-Apr	High---	High.
Ps--- Persanti	C	None---	---	---	2.0-3.5	Apparent	Dec-Apr	High---	High.
Ra--- Rains	B/D	Rare---	---	---	0-1.0	Apparent	Nov-Apr	High---	High.
ReB, ReC2--- Red Bay	B	None---	---	---	>6.0	---	---	Moderate	Moderate.
SuB, SuD--- Susquehanna	D	None---	---	---	>6.0	---	---	High---	High.
TfB, TsC2--- Tifton	B	None---	---	---	>6.0	---	---	Low---	Moderate.
Up:* Udorthents.									
Pits.									
VaC,* VaD:* Vaucluse---	C	None---	---	---	>6.0	---	---	Low---	High.
Ailey---	B	None---	---	---	>6.0	---	---	Moderate	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--PHYSICAL AND CHEMICAL ANALYSES OF SELECTED SOILS

Soil series, soil number, horizon, and depth in inches[1]	Total			Size class and particle diameter (mm)							Ratio	Water content	Reaction	
				Sand					Silt					
	Sand (2-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Coarse (0.05-0.02)	Fine (0.02-0.002)	15-Bar to clay	15-Bar	1/1 H_2O	1/22 $CaCl_2$
	Pct < 2 mm											Pct		
Chastain: (S77GA-303-4)														
B1g------6-18	22.8	27.1	50.1	0.3	0.9	3.0	12.7	5.9	7.1	20.0	.41	20.3	4.8	4.3
B2g-----20-30	24.1	26.3	49.6	0.7	0.9	2.9	13.6	6.0	5.9	20.4	.38	18.9	5.4	5.0
Chewacla: (S77GA-319-1)														
B21-----15-30	50.3	14.9	34.8	3.2	10.0	10.1	21.3	5.7	3.8	11.1	.37	13.0	5.3	4.6
B23g----44-52	29.9	19.8	50.3	1.8	5.6	5.5	12.3	4.7	4.1	15.7	.36	18.0	7.3	6.9
Chewacla: (S77GA-319-2)														
IIB21---18-32	59.0	16.6	24.4	0.3	5.0	11.0	30.0	12.7	6.4	10.2	.43	10.5	4.4	3.8
IIB22---32-50	45.4	24.0	30.6	0.1	0.9	1.7	23.6	19.1	7.7	16.3	.43	13.1	4.4	3.6
Persanti: (S77GA-303-1)														
B21t----15-20	28.1	23.5	48.4	2.8	5.6	4.3	8.9	6.5	6.4	17.1	.31	15.0	4.8	4.0
B22t----20-28	9.3	27.4	63.3	0.4	1.7	1.1	2.9	3.2	4.9	22.5	.35	22.0	4.8	3.9
B23t----28-52	16.5	28.5	55.0	1.8	2.8	2.2	4.7	5.0	6.5	22.0	.37	20.1	4.9	4.0
B24tg---52-62	39.3	14.9	45.8	4.0	7.6	5.7	12.4	9.6	4.4	10.5	.34	15.5	4.7	3.9

[1]Depth in inches are the actual depths from which samples were taken.

TABLE 18.--ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution										Liquid limit	Plasticity index	Moisture density		Percentage volume change		
			Percentage passing sieve--							Percentage smaller than--									
	AASHTO	Unified	2 inch	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture	Total	Swell	Shrink
													Pct		Lb/ Ft3	Pct	Pct	Pct	Pct
Lucy loamy sand:1 (S74GA-319-001)																			
A2------- 7 to 23	A-2-4(00)	SM	100	100	100	100	100	78	14	13	9	6	--	NP	117	9	--	0.5	0.0
B22t-----36 to 70	A-4 (00)	SC	100	100	100	100	100	80	37	35	33	31	30	8	114	14	4.4	1.5	2.9
Lucy loamy sand:2 (S72GA-158-001)																			
A2------- 7 to 26	A-2-4(00)	SM	100	100	100	99	99	87	14	11	8	5	--	NP	113	10	5.3	4.9	0.4
B21t-----26 to 39	A-2-4(00)	SM	100	99	98	97	97	84	19	18	16	14	--	NP	119	12	2.5	1.8	0.7
B22t-----39 to 72	A-4 (01)	SM	100	100	100	100	98	84	40	39	38	33	35	10	104	19	6.7	4.2	2.5
Marlboro loamy sand:3 (S72GA-150-001)																			
Ap------- 0 to 8	A-2-4(00)	SM	100	100	99	98	95	78	24	16	9	7	--	NP	117	11	2.9	2.0	0.9
B21t-----16 to 34	A-6 (07)	CL	100	100	100	98	95	87	56	50	45	44	37	17	103	20	10.4	4.3	6.1
B24t-----42 to 65	A-7-6(06)	ML	100	100	100	98	97	87	54	49	43	41	44	15	104	21	15.9	7.2	8.7
Orangeburg loamy sand:4 (S72GA-158-002)																			
A1------- 0 to 7	A-2-4(00)	SM	100	100	100	100	99	87	21	14	10	7	--	NP	116	10	3.1	2.6	0.5
B22t-----19 to 40	A-6 (01)	SC	100	100	99	99	98	92	38	32	30	30	29	11	116	14	9.6	6.9	2.7
B23t-----40 to 72	A-6 (01)	SC	100	100	100	100	99	96	43	35	33	32	30	11	112	15	10.5	6.4	4.1
Orangeburg loamy sand:5 (S74GA-319-002)																			
Ap------- 0 to 7	A-2-4(00)	SM	100	100	100	100	100	85	15	11	8	6	--	NP	113	10	--	4.9	--
B1------- 7 to 13	A-2-4(00)	SM	100	100	100	100	100	91	27	21	15	12	--	NP	125	8	--	1.8	--
B22t-----26 to 55	A-6 (02)	SC	100	100	100	100	100	93	46	45	41	35	28	11	113	14	--	4.2	--

See footnotes at end of table.

TABLE 18.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain size distribution									Liquid limit	Plasticity index	Moisture density		Percentage volume change		
			Percentage passing sieve--						Percentage smaller than--									
	AASHTO	Unified	2 inch	3/4 inch	3/8 inch	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Max. dry density	Optimum moisture	Total	Swell	
													Pct		Lb/Ft3	Pct	Pct	Pct	
Tifton loamy sand:[6] (S74GA-303-002)																			
Apcn----- 0 to 6	A-2-4(00)	SM	100	100	99	97	96	75	26	18	12	10	--	NP	120	11	4.3	4.2	
B21tcn--- 6 to 30	A-4 (03)	ML	100	100	98	95	93	82	52	49	42	39	36	9	109	17	3.8	1.3	
B22tcn---30 to 42	A-4 (00)	SM	100	100	98	95	92	74	38	36	30	27	31	5	113	15	2.0	0.7	
Tifton loamy sand:[7] (S72GA-150-002)																			
Apcn----- 0 to 8	A-2-4(00)	SM	100	100	97	96	94	76	24	14	9	8	--	NP	121	10	3.3	2.3	
B22tcn---21 to 34	A-6 (03)	SC	100	99	97	93	89	77	46	41	38	36	36	13	105	18	12.2	6.1	
B24tcn---42 to 65	A-4 (01)	SM	100	98	93	90	87	70	38	33	30	28	37	10	109	18	9.6	4.9	

[1]Lucy loamy sand: 5 miles west of junction of Georgia Highways 112 and 57 at Toomsboro, Georgia; 15 yards south, in wooded area.

[2]Lucy loamy sand: 1 mile south of fire tower on Georgia Highway 112; 0.5 mile west on county road; in wooded area south of road.

[3]Marlboro loamy sand: 2 miles east of Davisboro on Highway 24; 1.2 miles north on county road; 20 yards east, in cultivated field.

[4]Orangeburg loamy sand: 0.5 mile west of Ebenezer Church on county road; 0.3 mile north on county road; north side of road.

[5]Orangeburg loamy sand: 5.1 miles north of crossing of Big Sandy Creek and Georgia Highway 112 on Highway 112; 1.3 miles east on county road; 30 yards northwest on road.

[6]Tifton loamy sand: 1.1 miles south of New Hope Church along county road; 10 yards west of road. This profile of Tifton loamy sand is a taxadjunct to the series. The percentage passing the No. 10 sieve and the percentage of clay are higher than described in the range for the series.

[7]Tifton loamy sand: 0.9 mile south of New Hope Church along county road; 10 yards west of road.

TABLE 19.--CLASSIFICATION OF THE SOILS

[An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series]

Soil name	Family or higher taxonomic class
Ailey	Loamy, siliceous, thermic Arenic Fragiudults
Ardilla	Fine-loamy, siliceous, thermic Fragiaquic Paleudults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Chastain	Fine, kaolinitic, acid, thermic Typic Fluvaquents
Chewacla	Fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts
Congaree	Fine-loamy, mixed, nonacid, thermic Typic Udifluvents
Cowarts	Fine-loamy, siliceous, thermic Typic Hapludults
Dothan	Fine-loamy, siliceous, thermic Plinthic Paleudults
Eustis	Sandy, siliceous, thermic Psammentic Paleudults
Faceville	Clayey, kaolinitic, thermic Typic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Grady	Clayey, kaolinitic, thermic Typic Paleaquults
Greenville	Clayey, kaolinitic, thermic Rhodic Paleudults
Kinston	Fine-loamy, siliceous, acid, thermic Typic Fluvaquents
Lakeland	Thermic, coated Typic Quartzipsamments
Lucy	Loamy, siliceous, thermic Arenic Paleudults
Marlboro	Clayey, kaolinitic, thermic Typic Paleudults
Mascotte	Sandy, siliceous, thermic Ultic Haplaquods
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Ochlockonee	Coarse-loamy, siliceous, acid, thermic Typic Udifluvents
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
Orangeburg	Fine-loamy, siliceous, thermic Typic Paleudults
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
*Persanti	Clayey, kaolinitic, thermic Aquic Paleudults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Red Bay	Fine-loamy, siliceous, thermic Rhodic Paleudults
*Susquehanna	Fine, montmorillonitic, thermic Vertic Paleudalfs
Tifton	Fine-loamy, siliceous, thermic Plinthic Paleudults
*Vaucluse	Fine-loamy, siliceous, thermic Typic Fragiudults

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GLASCOCK COUNTY
HANCOCK COUNTY
JEFFERSON COUNTY
BALDWIN COUNTY
WILKINSON COUNTY
JOHNSON COUNTY
82°50'
83°00'
33°10'
82°40'
SANDERSVILLE
CENTRAL
Tennille
Harrison
Hamburg Mill Pond
Archers Lakes
Jordan Mill Pond
Walker Pond
Amerson Mill Pond
Brantley Lake
Lewis Lake
Davisboro
Hillsville
Ogeechee River
Buffalo Creek
Rocky Creek
Little Creek
Cold Creek
Kelly Creek
Jones Branch
Georgia Creek
Gainer Mill Creek
Goldens Br.
Sandy Creek
Reedy Creek
Mary Br.
Hall Creek
Dry Creek
Turkey Creek
Deepdale Creek
Gum Creek
Hall Creek
Hall Creek
Hall

LEGEND

POORLY DRAINED TO WELL DRAINED SOILS ON FLOOD PLAINS

1 Chewacla-Chastain Complex. Nearly level, poorly drained to well drained soils that have a loamy surface layer and a loamy or clayey subsoil or loamy underlying layers.

2 Bibb-Kinston. Nearly level, poorly drained soils that have a loamy or sandy surface layer and loamy or sandy underlying layers.

SOMEWHAT POORLY DRAINED SOILS ON LOW LYING UPLANDS AND MODERATELY WELL DRAINED SOILS ON STREAM TERRACES

3 Ardilla-Persanto Soils. Nearly level, somewhat poorly drained and moderately well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil.

PREDOMINANTLY WELL DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

4 Orangeburg-Faceville-Greenville. Nearly level to sloping, well drained soils that have a loamy or clayey surface layer and a loamy or clayey subsoil.

5 Fuquay-Lakeland-Dothan. Nearly level to sloping, well drained and excessively drained soils that have a sandy surface layer and a loamy subsoil or sandy underlying layers.

6 Dothan-Tifton-Faceville. Nearly level to gently sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil that commonly is 8 percent or more plinthite.

7 Cowarts-Norfolk-Dothan. Nearly level to sloping, well drained soils that have a loamy or clayey surface layer and a loamy or clayey subsoil.

EXCESSIVELY DRAINED AND SOMEWHAT EXCESSIVELY DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

8 Lakeland-Eunola. Nearly level to sloping, excessively drained and somewhat excessively drained soils that are sandy throughout.

DISTURBED SOIL MATERIAL AND PITS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

9 Udorthents-Pits. Gently sloping to moderately steep, disturbed soil material and pits from which soil were mined for kaolin.

PREDOMINANTLY WELL DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SAND HILLS

10 Vaucluse-Ailey Complex. Very gently sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil.

11 Lakeland-Lucy-Orangeburg. Nearly level to moderately steep, excessively drained and well drained soils that have a sandy or loamy surface layer and a loamy subsoil or sandy underlying layers.

WELL DRAINED SOILS ON HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

12 Orangeburg. Sloping and moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP

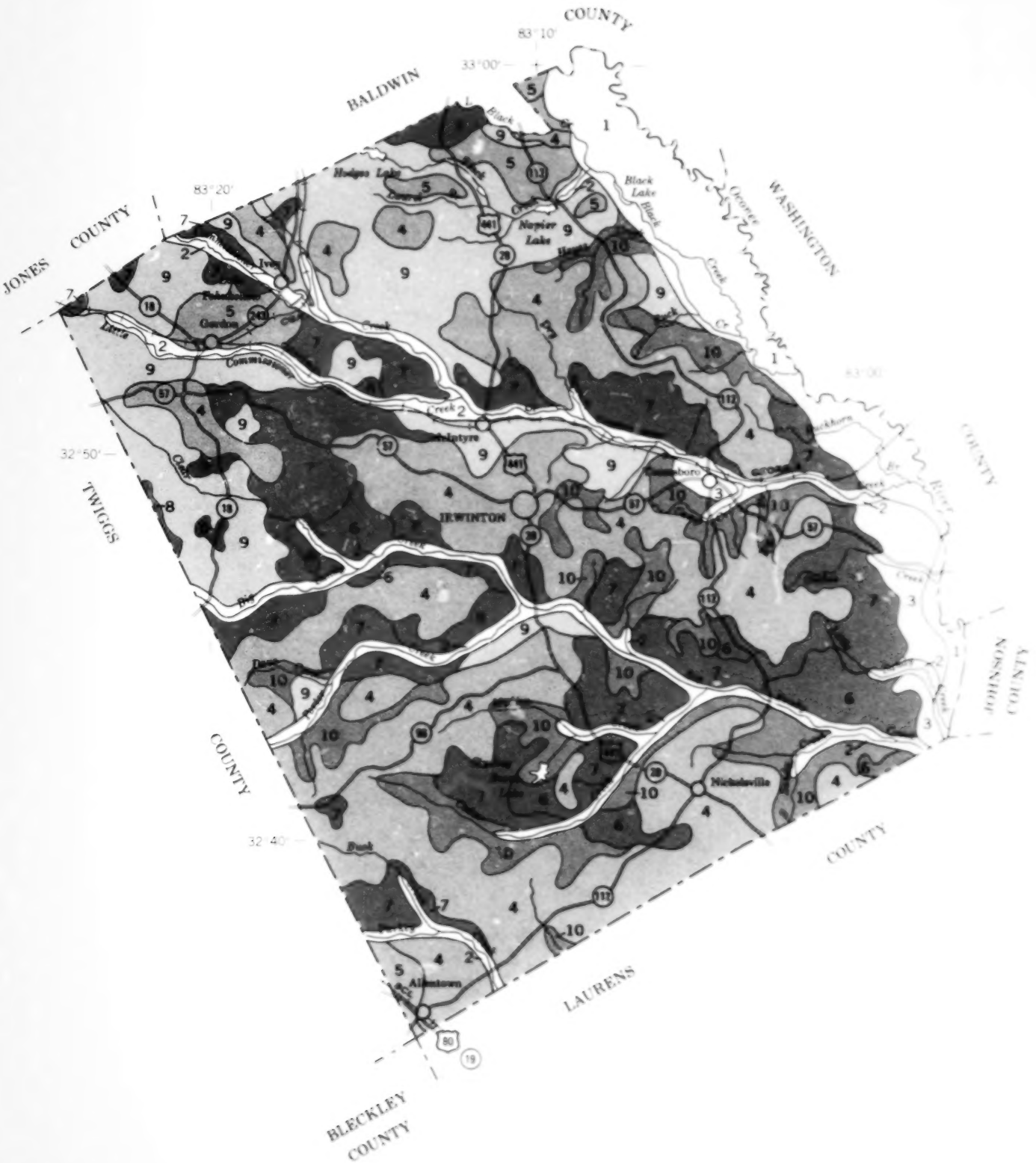
WASHINGTON COUNTY, GEORGIA

N

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND

POORLY DRAINED TO WELL DRAINED SOILS ON FLOOD PLAINS

1 Chewacla-Chastain-Congaree - Nearly level, poorly drained to well drained soils that have a loamy surface layer and a loamy or clayey subsoil or loamy underlying layers

2 Bibb-Kinston - Nearly level, poorly drained soils that have a loamy or sandy surface layer and loamy or sandy underlying layers

POORLY DRAINED AND SOMEWHAT POORLY DRAINED SOILS ON LOW LYING UPLANDS AND NEAR DRAINAGEWAYS

3 Malcolm-Ocilla-Pelham - Nearly level, poorly drained and somewhat poorly drained soils that have a sandy surface layer and a loamy subsoil

WELL DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

4 Orangeburg-Fairvilla - Nearly level to sloping, well drained soils that have a sandy or loamy surface layer and a loamy or clayey subsoil

5 Dorman-Orangeburg-Fuquay - Nearly level to gently sloping, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

WELL DRAINED TO EXCESSIVELY DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

6 Lakeland-Eustis - Nearly level to sloping, excessively drained and somewhat excessively drained soils that have a sandy throughout

7 Lakeland-Orangeburg-Luverne - Nearly level to moderately steep, excessively drained and well drained soils that have a sandy or loamy surface layer and a loamy subsoil or sandy underlying layers

DISTURBED SOIL MATERIAL AND PITS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

8 Udorthents-Pits - Gently sloping to moderately steep disturbed soil material and pits or areas not appropriate for mapping

WELL DRAINED SOILS ON RIDGETOPS AND HILLSIDES ON UPLANDS OF THE SAND HILLS

9 Vaucluse-Ailey-Cowarts - Very gently sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

WELL DRAINED SOILS ON HILLSIDES ON UPLANDS OF THE SOUTHERN COASTAL PLAIN

10 Orangeburg - Sloping to moderately steep, well drained soils that have a sandy or loamy surface layer and a loamy subsoil

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATIONS

GENERAL SOIL MAP

WILKINSON COUNTY, GEORGIA

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 4 8 Km

Inset, sheet
Inset, sheet 54
Inset, sheet 5
Inset, sheet 58
Inset, sheet 16
Inset, sheet 50
Inset, sheet 4
Inset, sheet 62A
Inset, sheet 62B
Inset, sheet 63
Inset, sheet 57
Inset, sheet 1
Inset, sheet 22
GLASCOCK
JONES COUNTY
BALDWIN
WASHINGTON
JOHNSON
TWIGGS
LAURENS
BLECKLEY COUNTY
SANDERSVILLE
IRWINTON
McIntyre
Nicholls
Harrison
Lake Tobesofkee
Sumner Lake
Ardens Lakes
Mill Pond
Wetumpka Creek
Rocky Branch Creek
Buckhorn Creek
Ohoopee River
Oconee River
Commerce
Creek
River
Lake
Branch
Swamp
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t 11

sheet 15

N

INDEX TO MAP SHEETS

WASHINGTON AND WILKINSON COUNTIES, GEORGIA

Scale 1:380,160

1 0 1 2 3 4 5 6 Miles

1 0 6 12 Km

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a small letter. The third letter, if used, is a capital letter and connotes slope class. Symbols without a slope letter are for level soils. A final number 2 in the symbol shows the soil is eroded.

SYMBOL	NAME
AeC	Ailey loamy sand, 2 to 8 percent slopes
Ar	Ardilla loamy sand
Bk	Bibb and Kinston sandy loams
Cc	Chewacla-Chastain association
Cg	Chewacla-Congaree association
CnB	Cowarts-Nankin complex, 2 to 5 percent slopes
CnC2	Cowarts-Nankin complex, 5 to 12 percent slopes, eroded
DoA	Dothan loamy sand, 0 to 2 percent slopes
DoB	Dothan loamy sand, 2 to 5 percent slopes
DoC	Dothan loamy sand, 5 to 8 percent slopes
EuB	Eustis loamy sand, 2 to 6 percent slopes
EuD	Eustis loamy sand, 6 to 12 percent slopes
FaB	Faceville sandy loam, 1 to 5 percent slopes
FaC2	Faceville sandy loam, 5 to 10 percent slopes, eroded
FsB	Fuquay loamy sand, 0 to 5 percent slopes
FsC	Fuquay loamy sand, 5 to 8 percent slopes
Gr	Grady loam
GsB	Greenville sandy loam, 1 to 5 percent slopes
GsC2	Greenville sandy loam, 5 to 10 percent slopes, eroded
LaB	Lakeland sand, 0 to 8 percent slopes
LaD	Lakeland sand, 8 to 12 percent slopes
LmB	Lucy loamy sand, 0 to 5 percent slopes
LmC	Lucy loamy sand, 5 to 8 percent slopes
MaB	Marlboro sandy loam, 2 to 5 percent slopes
Mn	Mascotte sand
Oc	Ochlockonee sandy loam
Od	Ocilla loamy sand
OrA	Orangeburg loamy sand, 0 to 2 percent slopes
OrB	Orangeburg loamy sand, 2 to 5 percent slopes
OrE	Orangeburg loamy sand, 12 to 17 percent slopes
OsC2	Orangeburg sandy loam, 5 to 8 percent slopes, eroded
OsD2	Orangeburg sandy loam, 8 to 12 percent slopes, eroded
Pe	Pelham loamy sand
Ps	Persanti fine sandy loam
Ra	Rains sandy loam
ReB	Red Bay loamy sand, 2 to 5 percent slopes
ReC2	Red Bay sandy loam, 5 to 8 percent slopes, eroded
SuB	Susquehanna sandy loam, 2 to 5 percent slopes
SuD	Susquehanna sandy loam, 5 to 12 percent slopes
TfB	Tifton loamy sand, 2 to 5 percent slopes
TsC2	Tifton sandy loam, 5 to 8 percent slopes, eroded
Up	Udorthents-Pits complex
VaC	Vaucluse and Ailey loamy sands, 2 to 8 percent slopes
VaD	Vaucluse and Ailey loamy sands, 8 to 17 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline

AD HOC BOUNDARY (label)

- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label)
- Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

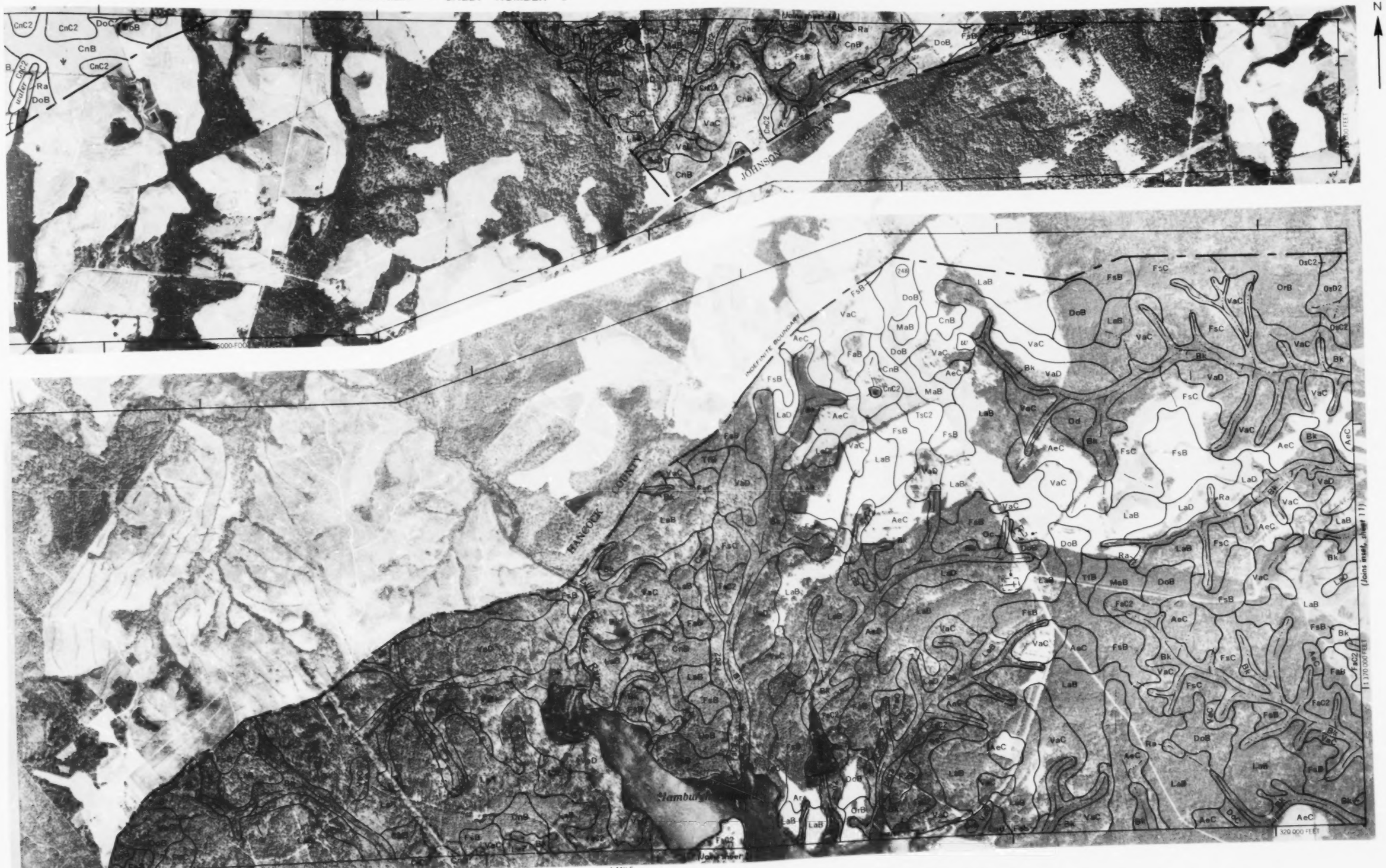
SOIL SAMPLE SITE (normally not shown)

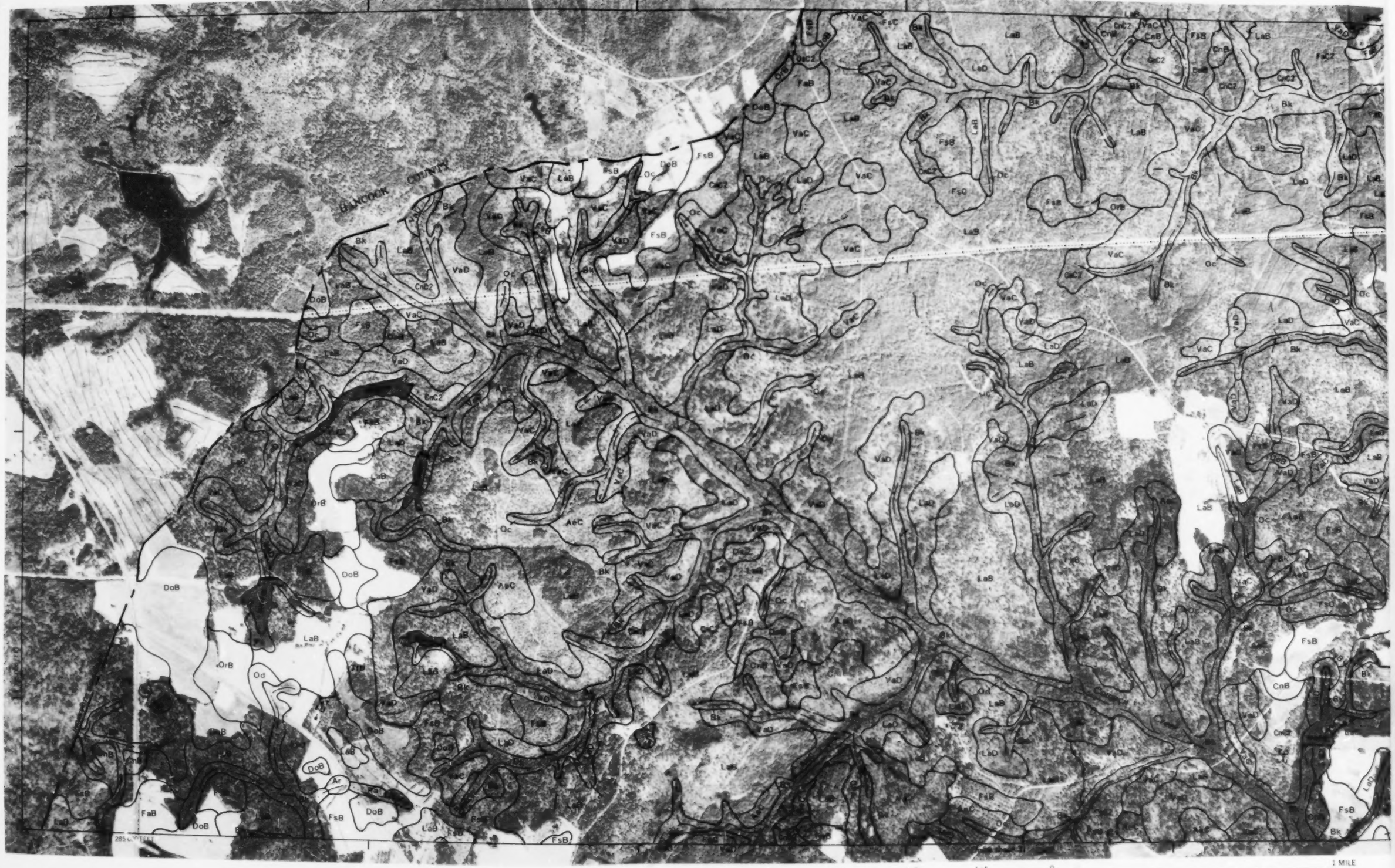
MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

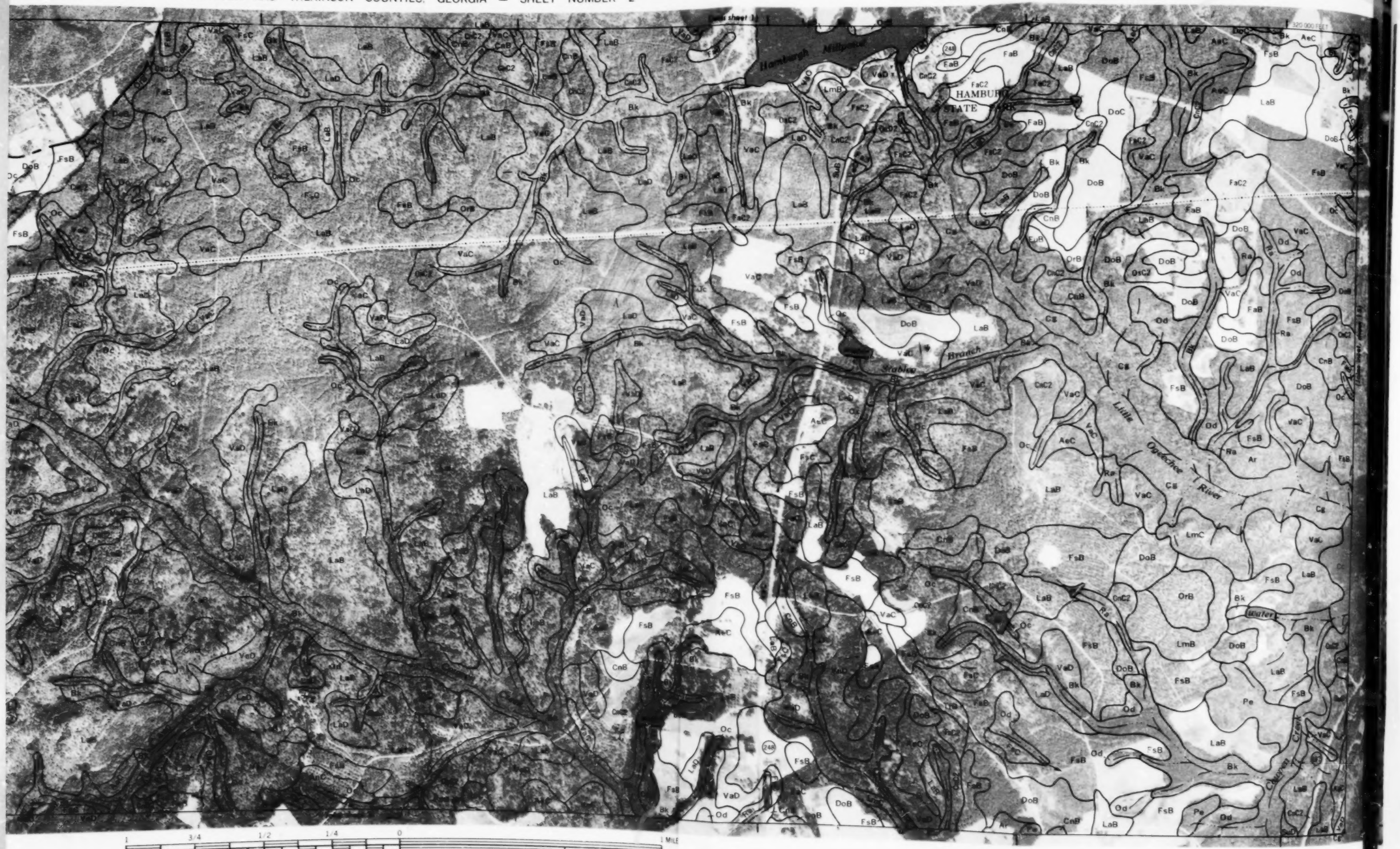
(Joins sheet 48)
JOHNSON COUNTY
HANCOCK COUNTY
WASHINGTON COUNTY
Hamburg
285 000 FEET
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 1




N
HANCOCK COUNTY
DoB
FsB
VaC
LaB
Oc
VaD
CnC2
FaB
Bk
LaD
AeC
AsC
OrB
Od
Ar
Qc
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 2



285 000 FEET
Little Creek
Sandy Run
Sandy Run
Sandy Run

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 3

3

N

(Joins sheet 2)

(Joins sheet 4)

(Joins sheet 6)

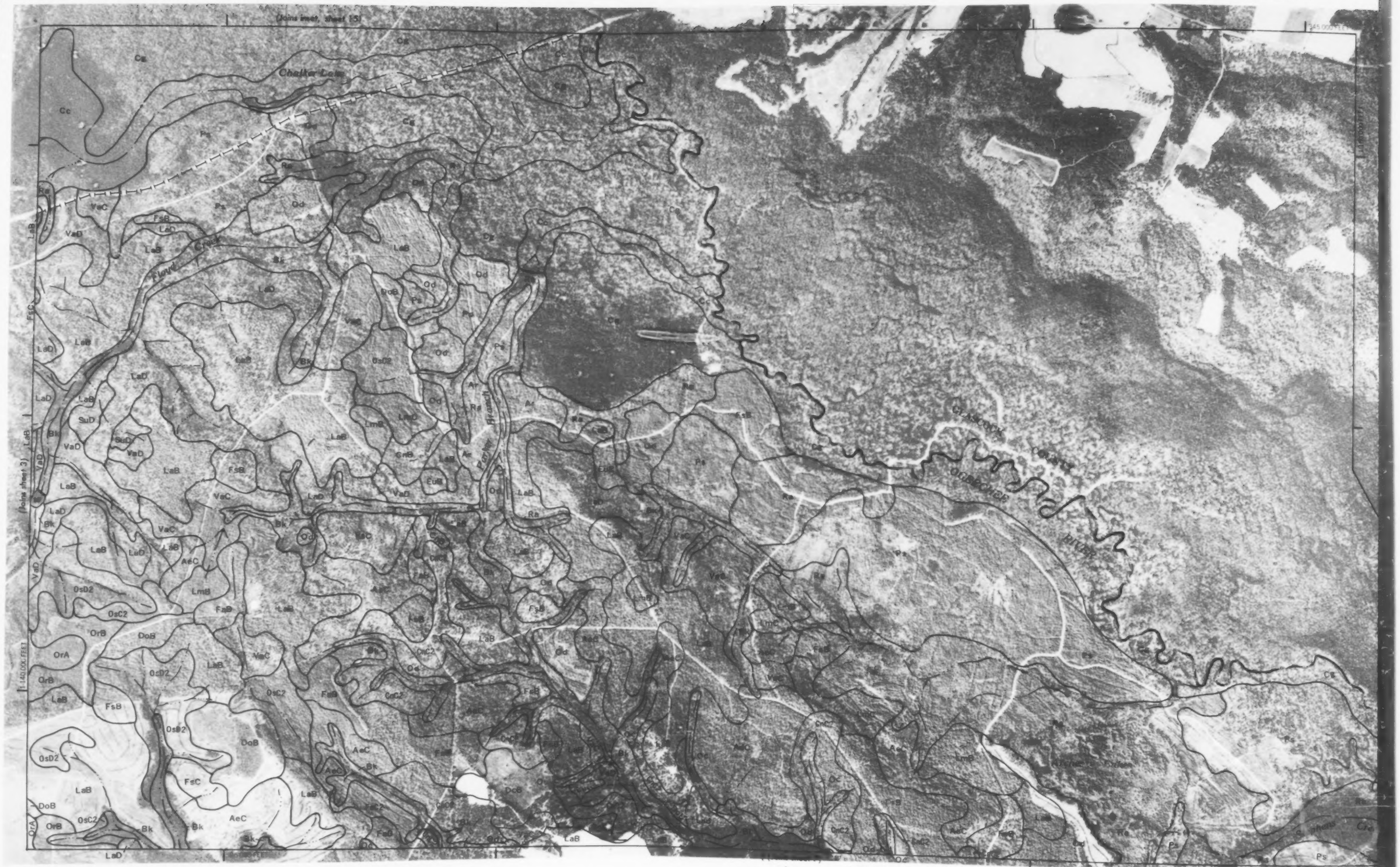
320 000 FEET

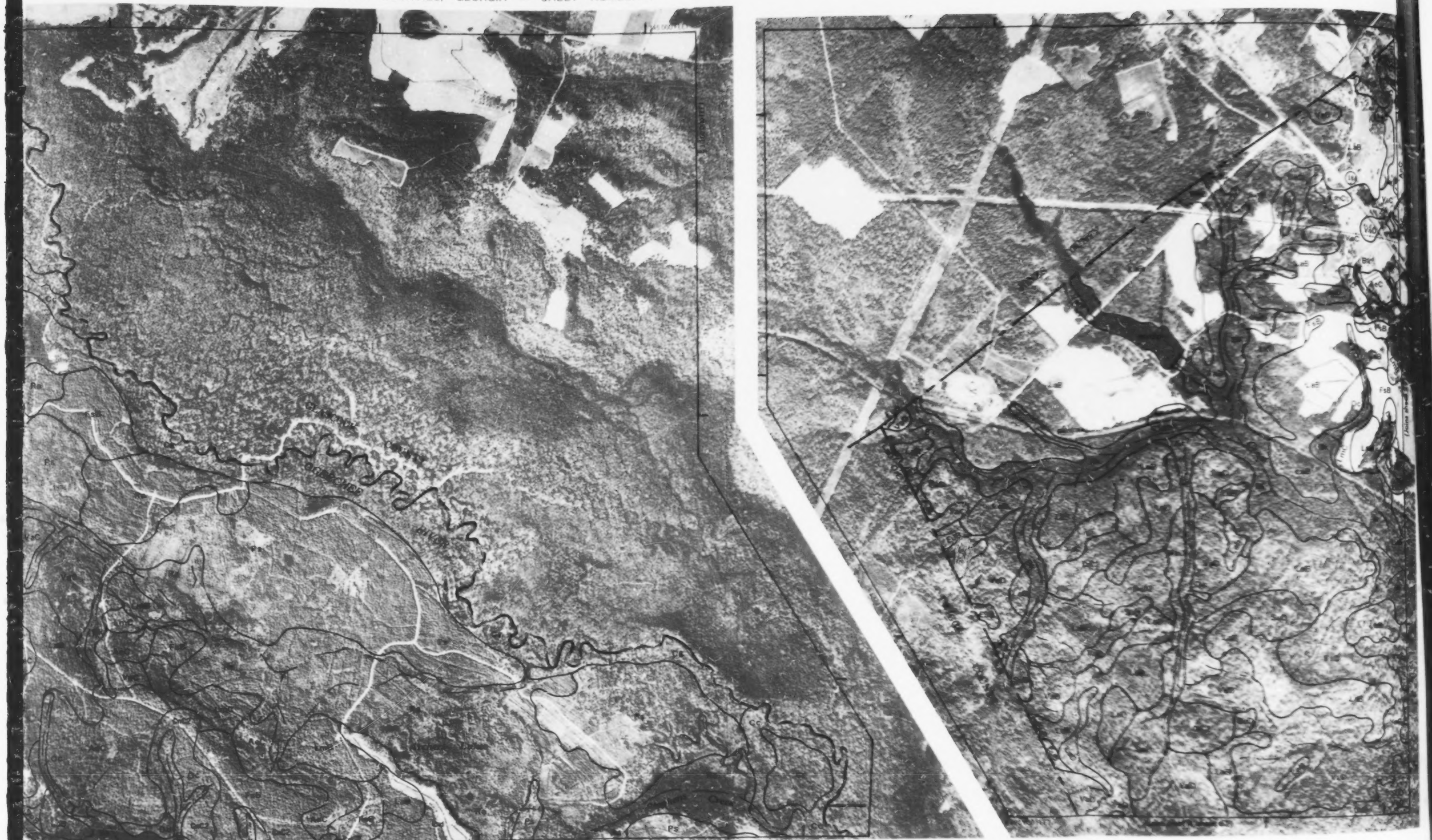
140 000 FEET

1 MILE

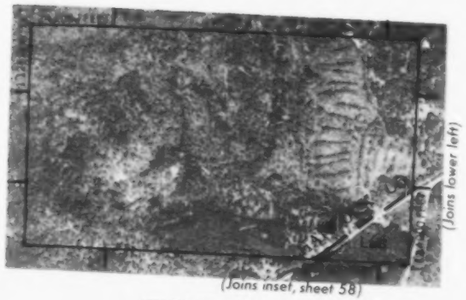
1 KILOMETER

SCALE 1:20 000


4
N
Chalker Lake
Joins sheet 15
Joins sheet 3
1:140,000 FEET
Cc
Ps
Re
Od
Cg
Dr
VeC
FsB
LaD
LaB
SuD
VaD
Bk
FsC
OsD2
OsC2
OrB
DoB
OrA
AeC
Lm8
FaB
Ar
Ev
Ca
Ogeechee River
Glascock
Ogeechee
River
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000



1 MILE
1 KILOMETER
SCALE 1:20 000



(Joins inset, sheet 58)

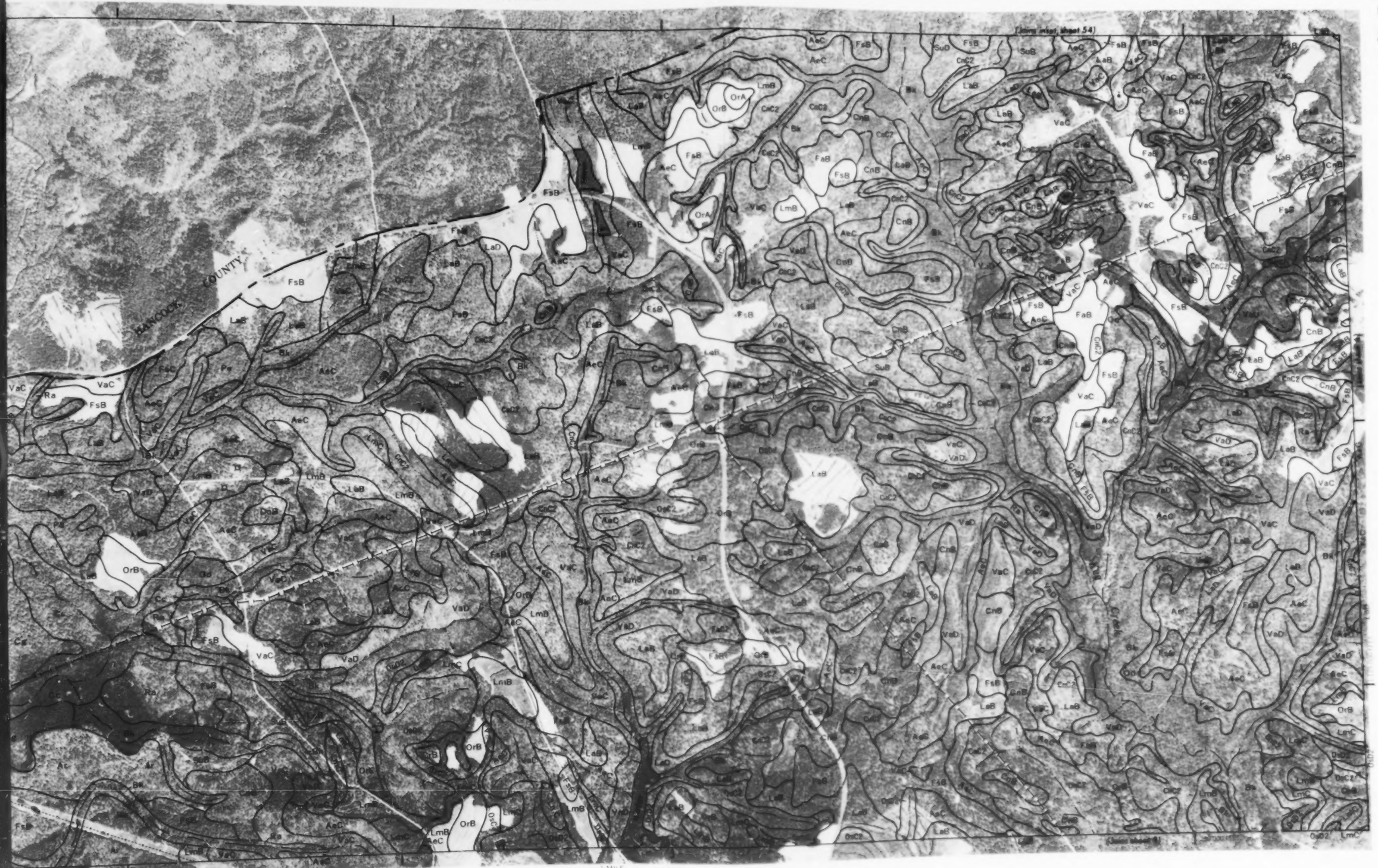
(Joins lower left)

1000 AND 3000-FOOT GRID TICKS

BANCOOK COUNTY

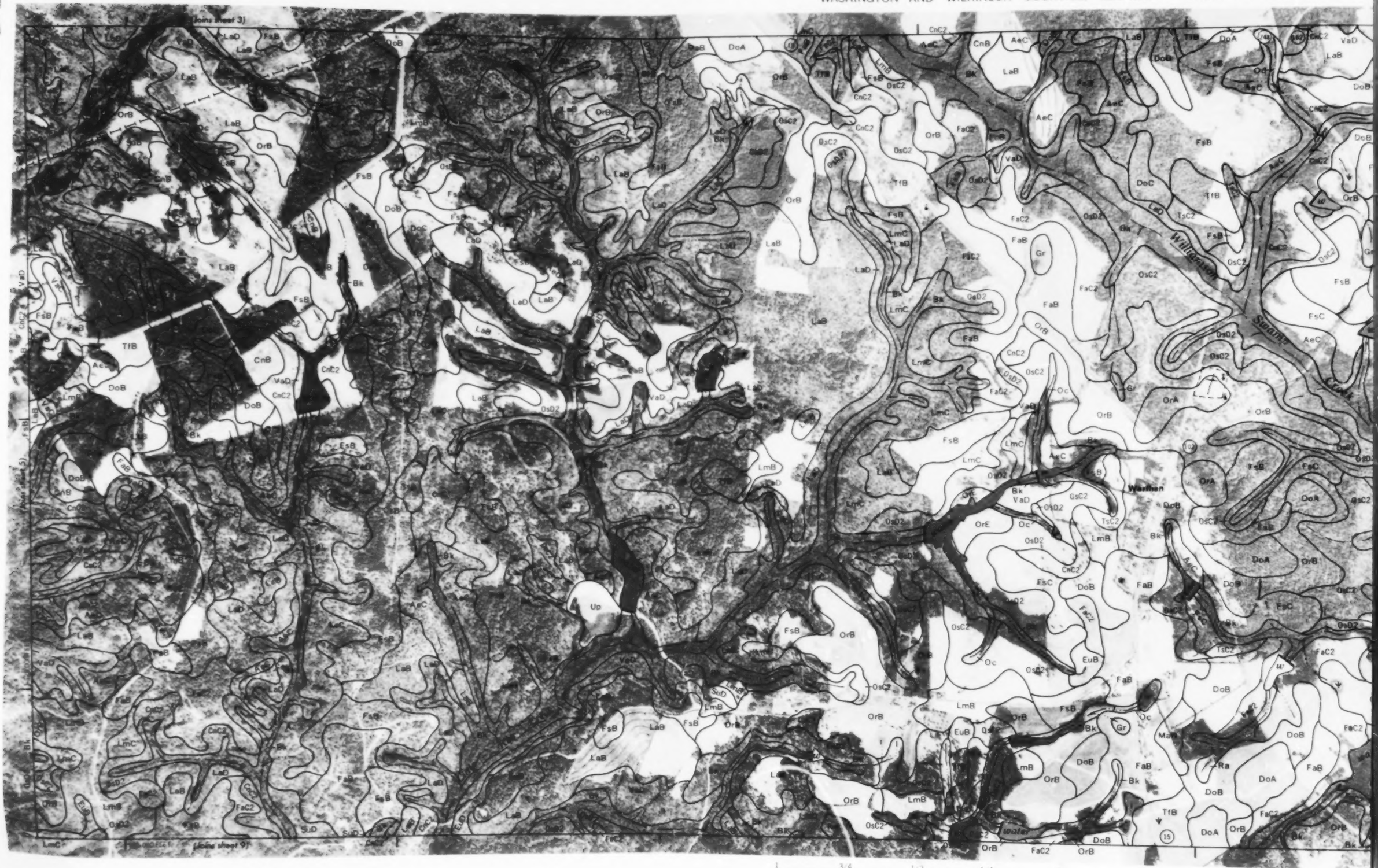
SCALE 1:20 000

N

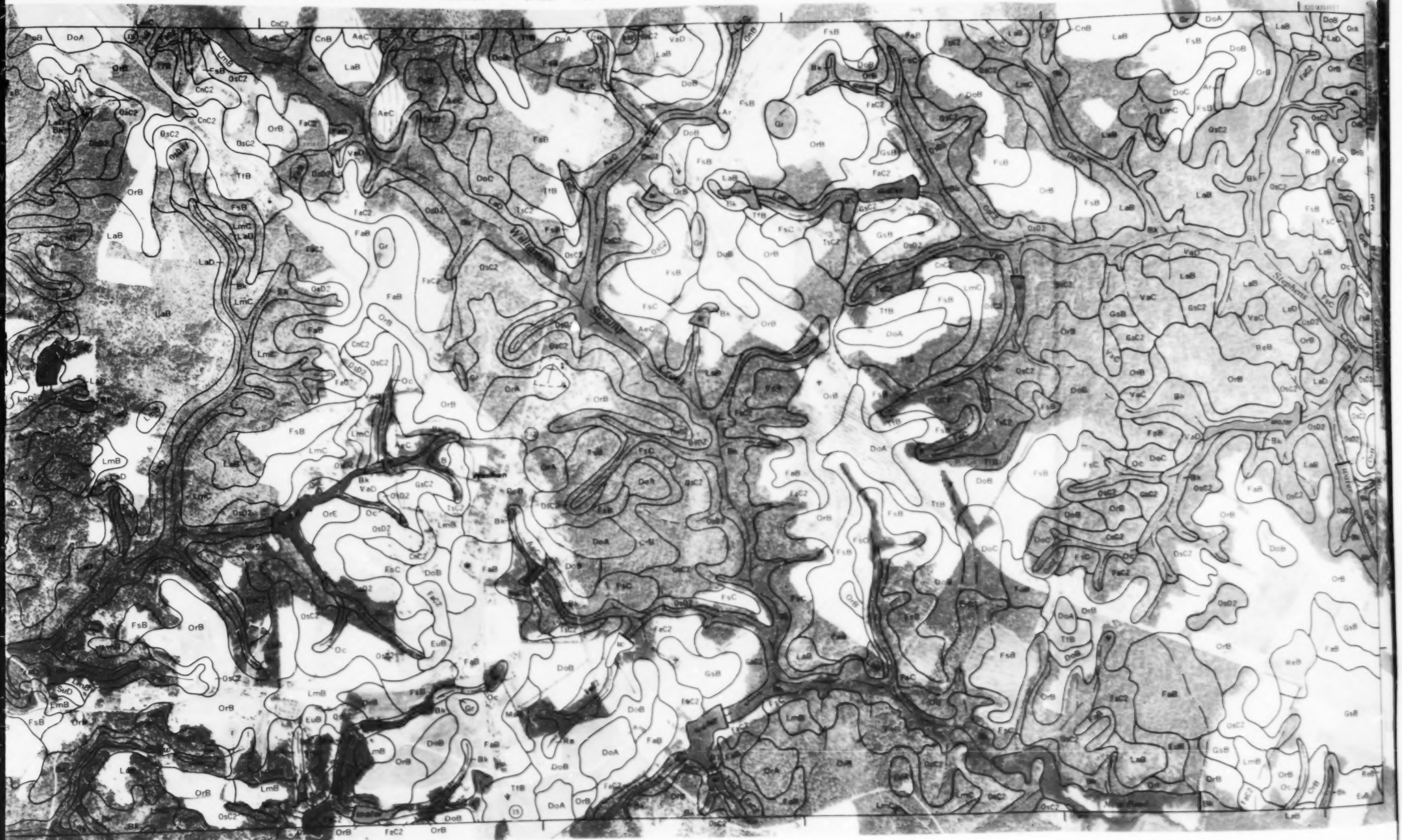


N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 6



WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 6



Stephens
Sparks
Stephens Lake
LaB
AeC
LaD
OrB
FsB
LmB
OsC2
FaB
FaC2
VaD
VaC
CnC2
DoB
ReB
EuB
GsB
OrA
Bk
Oc
Od
FsC
LmC
OsD2
ReC2
TfB
DoA
Gr
0 1 MILE
0 1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 7

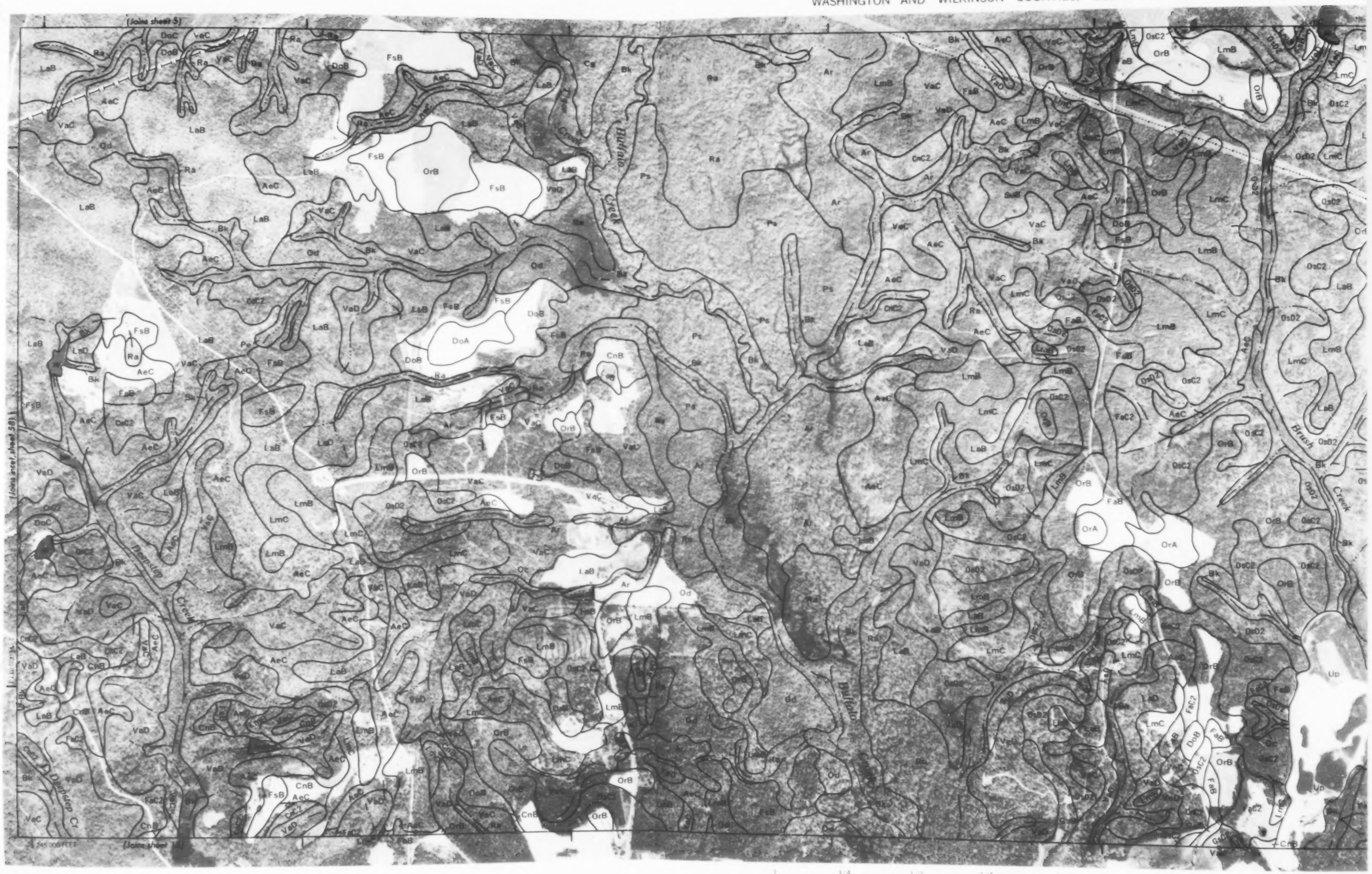
7

N

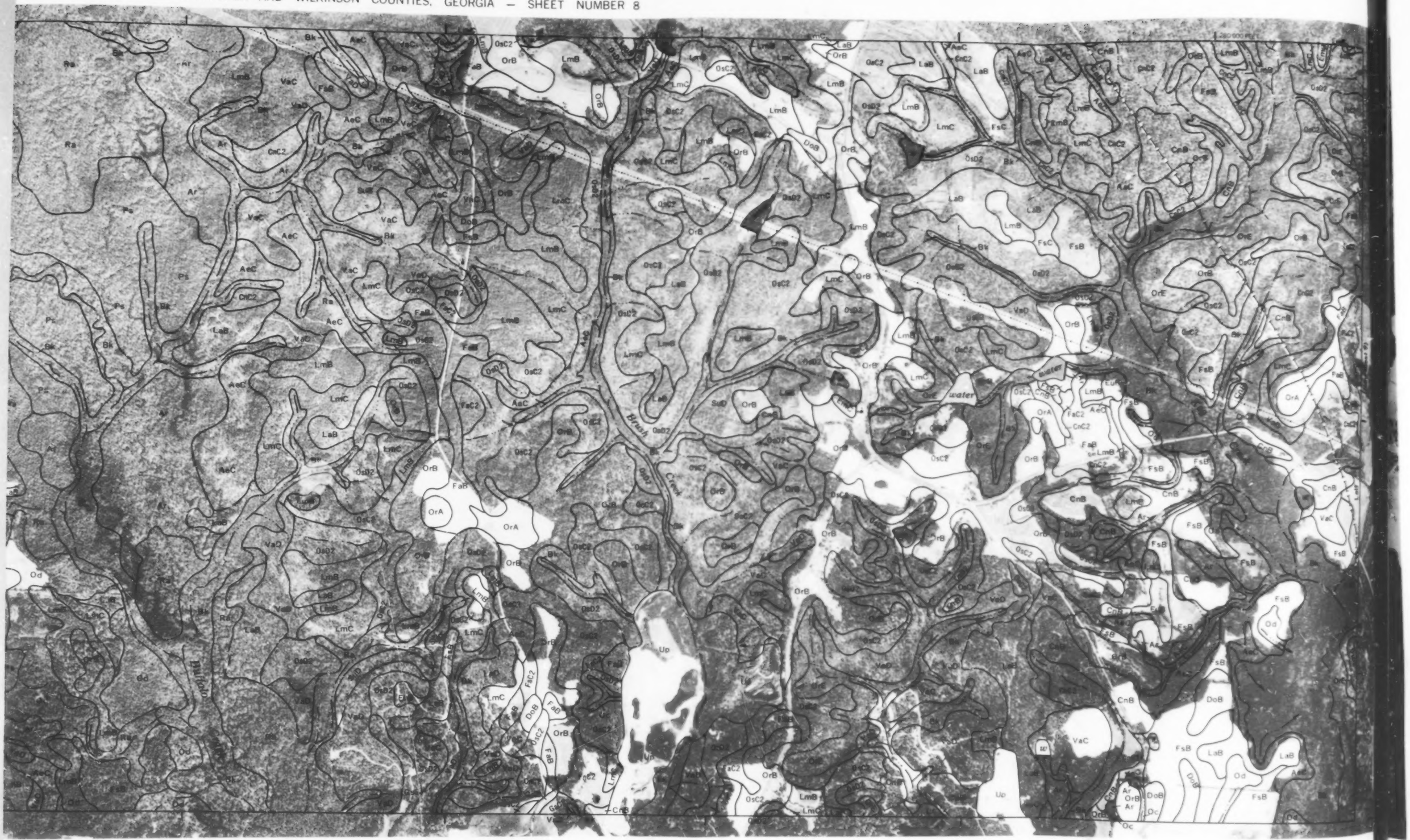
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 8

N



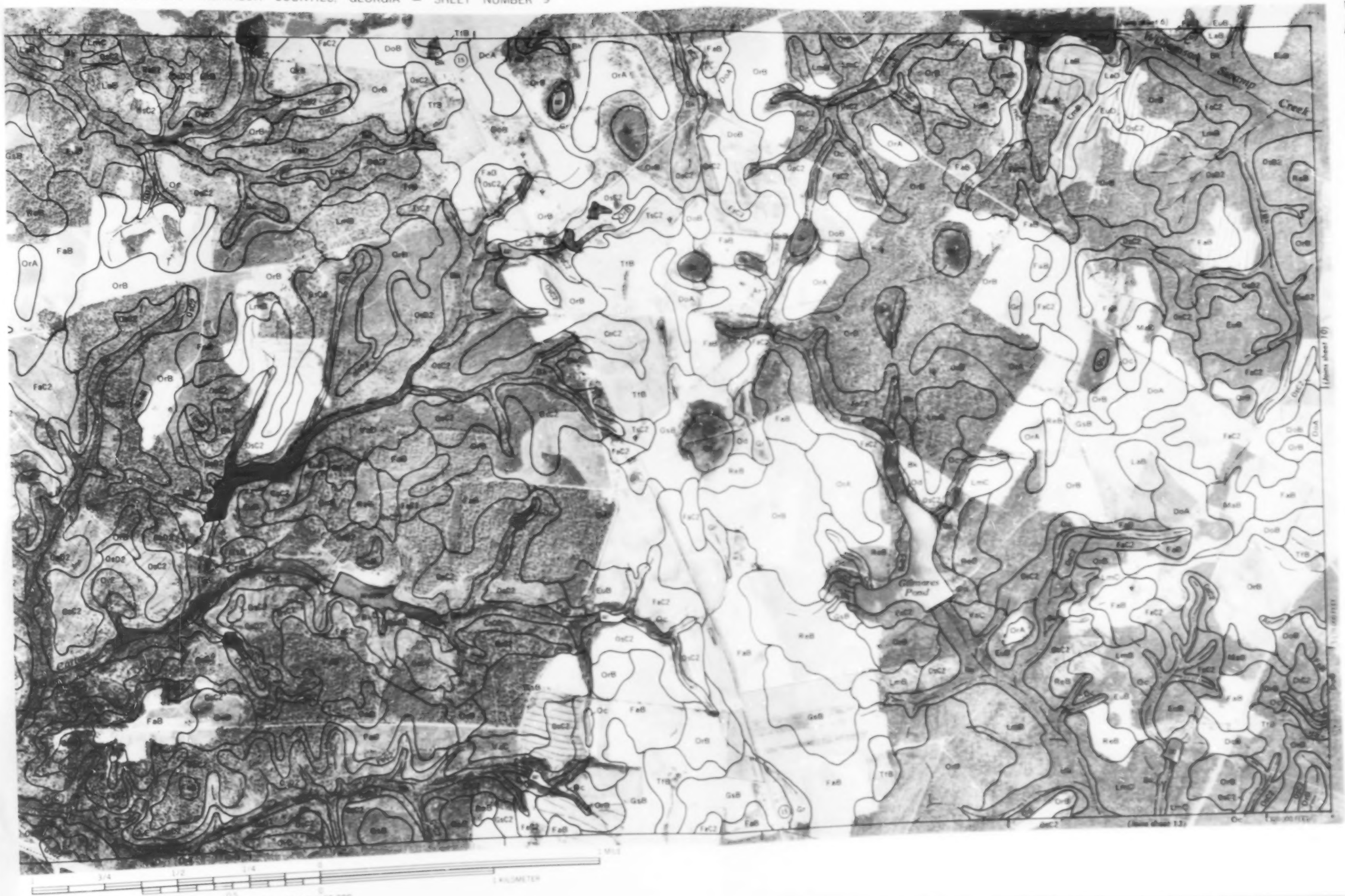
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 8


Brush Creek
Buffalo
Up
water
LaB
LmB
LmC
OrB
OrA
OsC2
OsD2
FaB
FaC2
FsB
FsC
VaC
VaD
AeC
CnB
CnC2
DoB
Od
Oc
Ar
Ra
Bk
Ps
Ud
Ud
Ud

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000


N
Gibsonaren Pond
Swamp Creek
SCALE 1:20 000

N

(Joins sheet 7)

Williamson Swamp Creek

water

Kittrell

Jordan

Millpond

Downs

(Joins sheet 9)

(Joins sheet 14)

325000 FEET

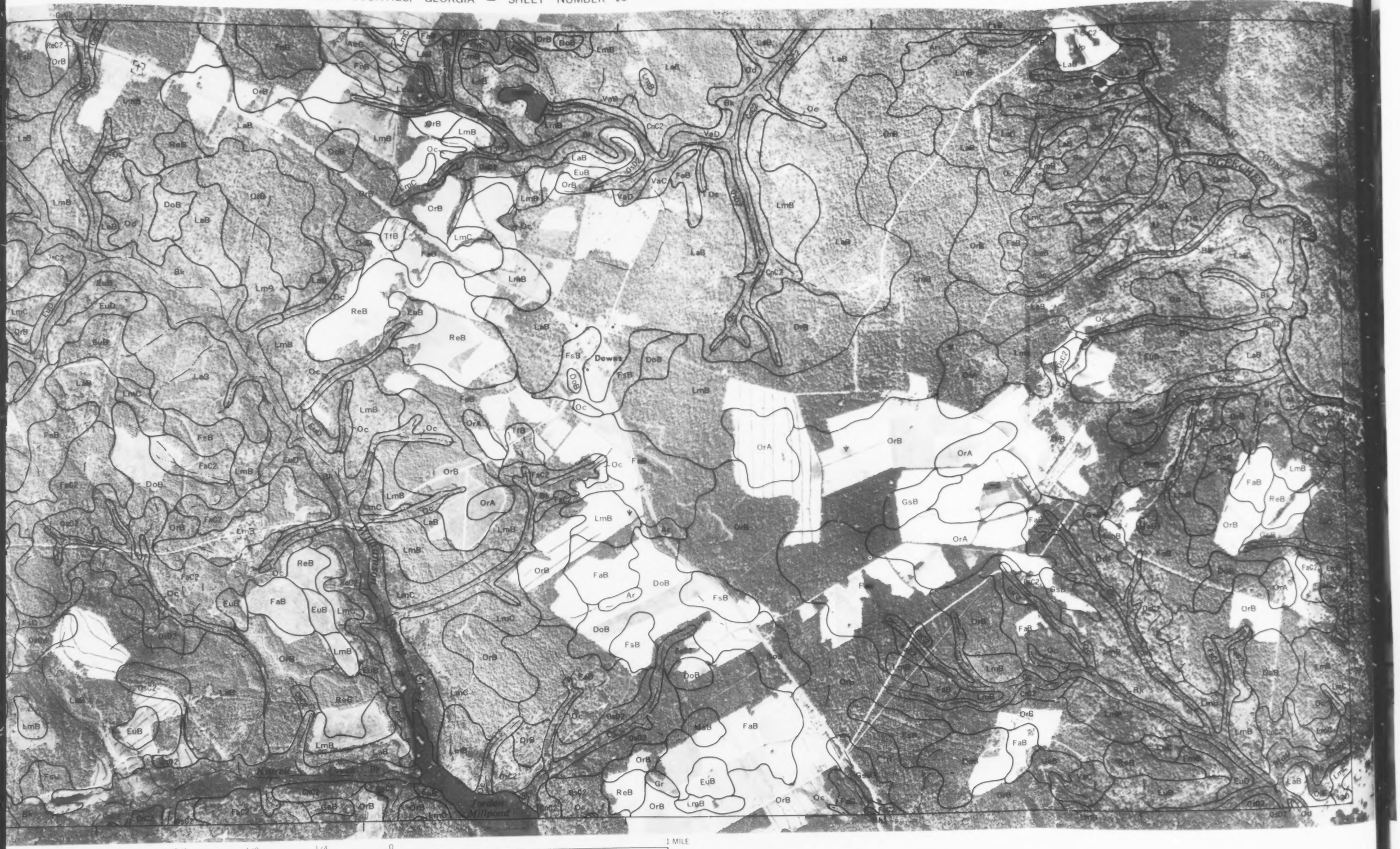
10 000 FEET

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 10

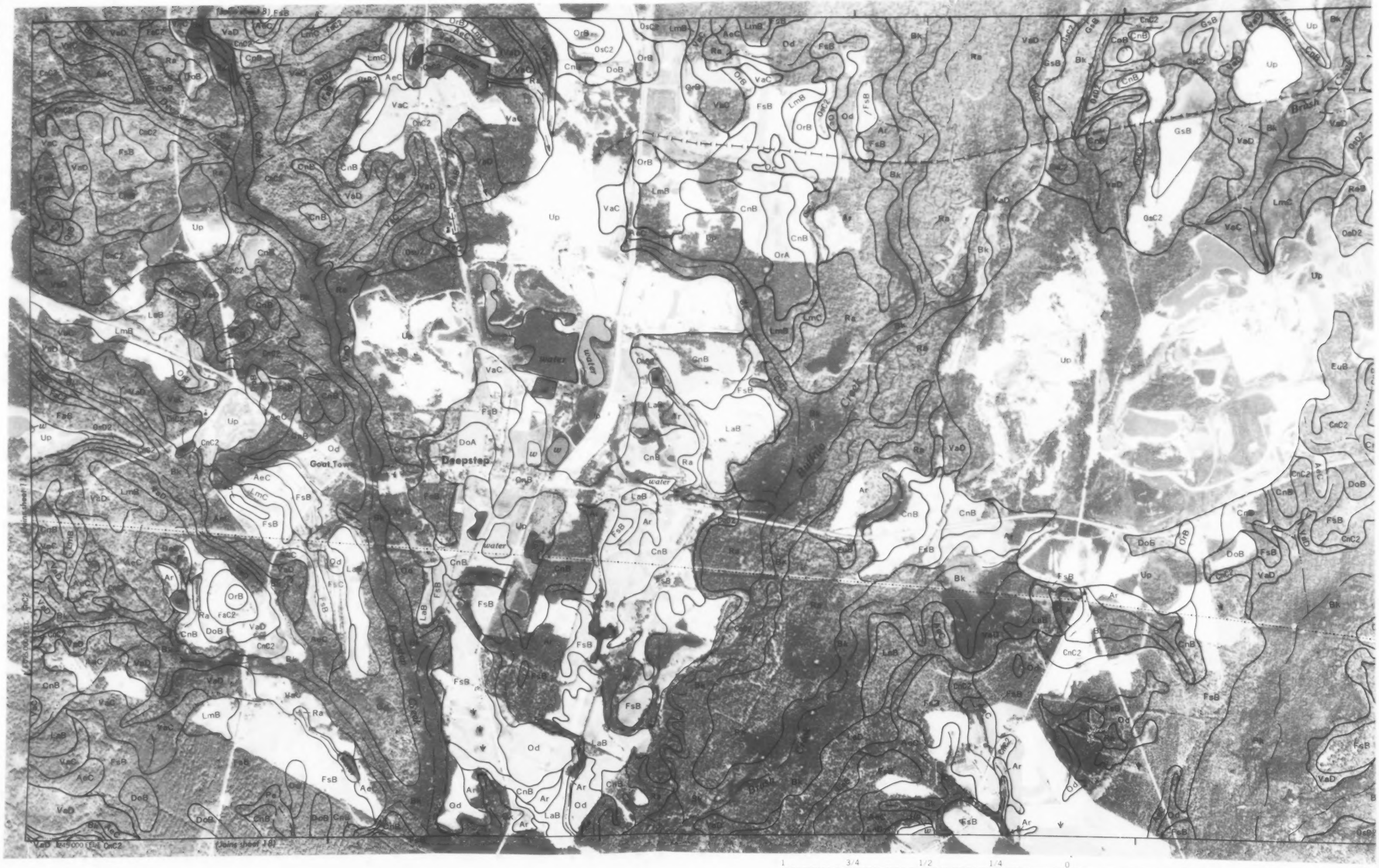


1 MILE
1 KILOMETER
SCALE 1:20 000

HANCOCK CO
(Joins sheet
OCMULGEE
RIVER
BALDWIN
COUNTY
(Joins sheet, sheet 1
BALDWIN CO
3000 AND 5000-FOOT GRID TICKS
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 11

N



1 3/4 1/2 1/4 0 1 MILE

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

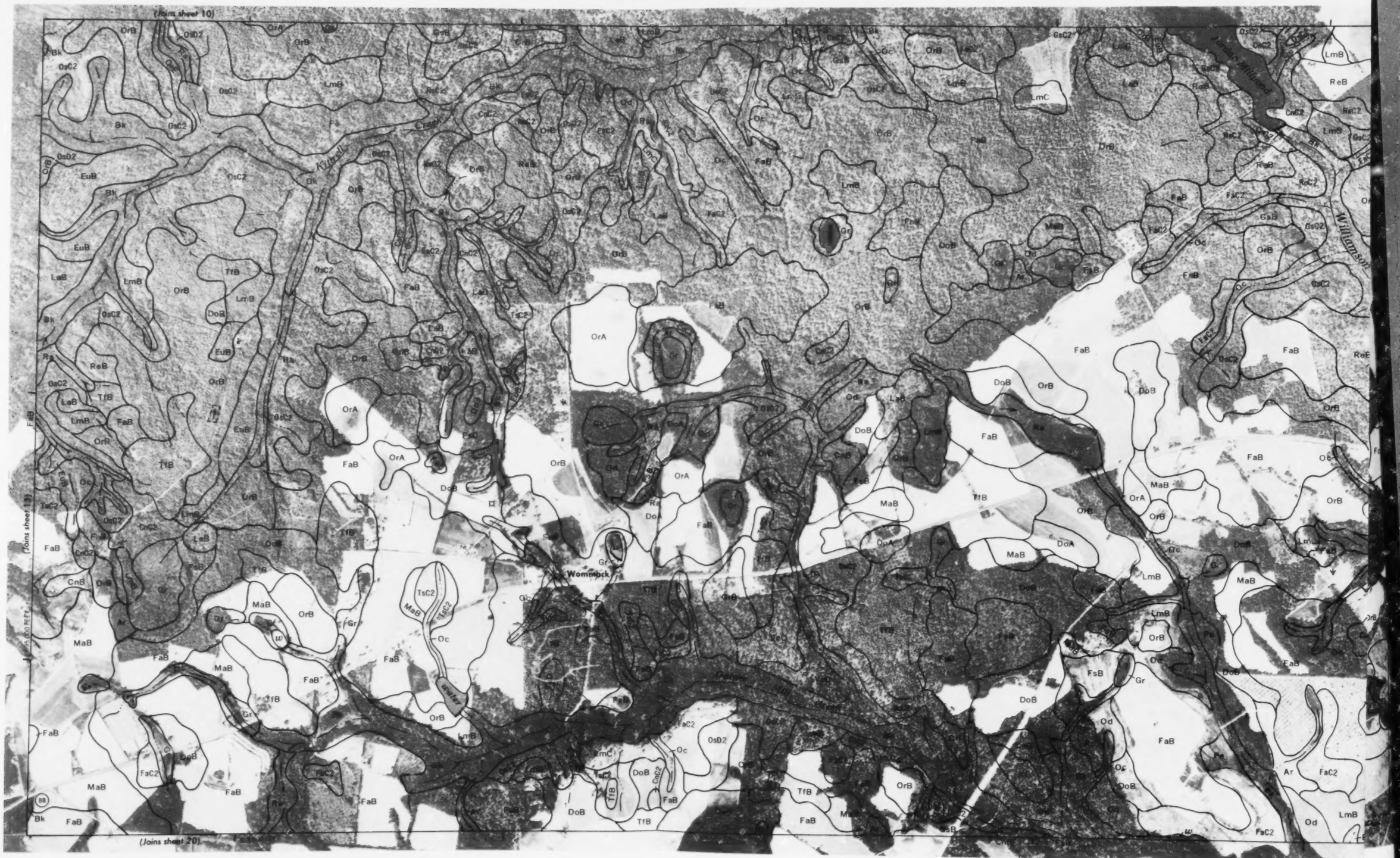
SCALE 1:20 000

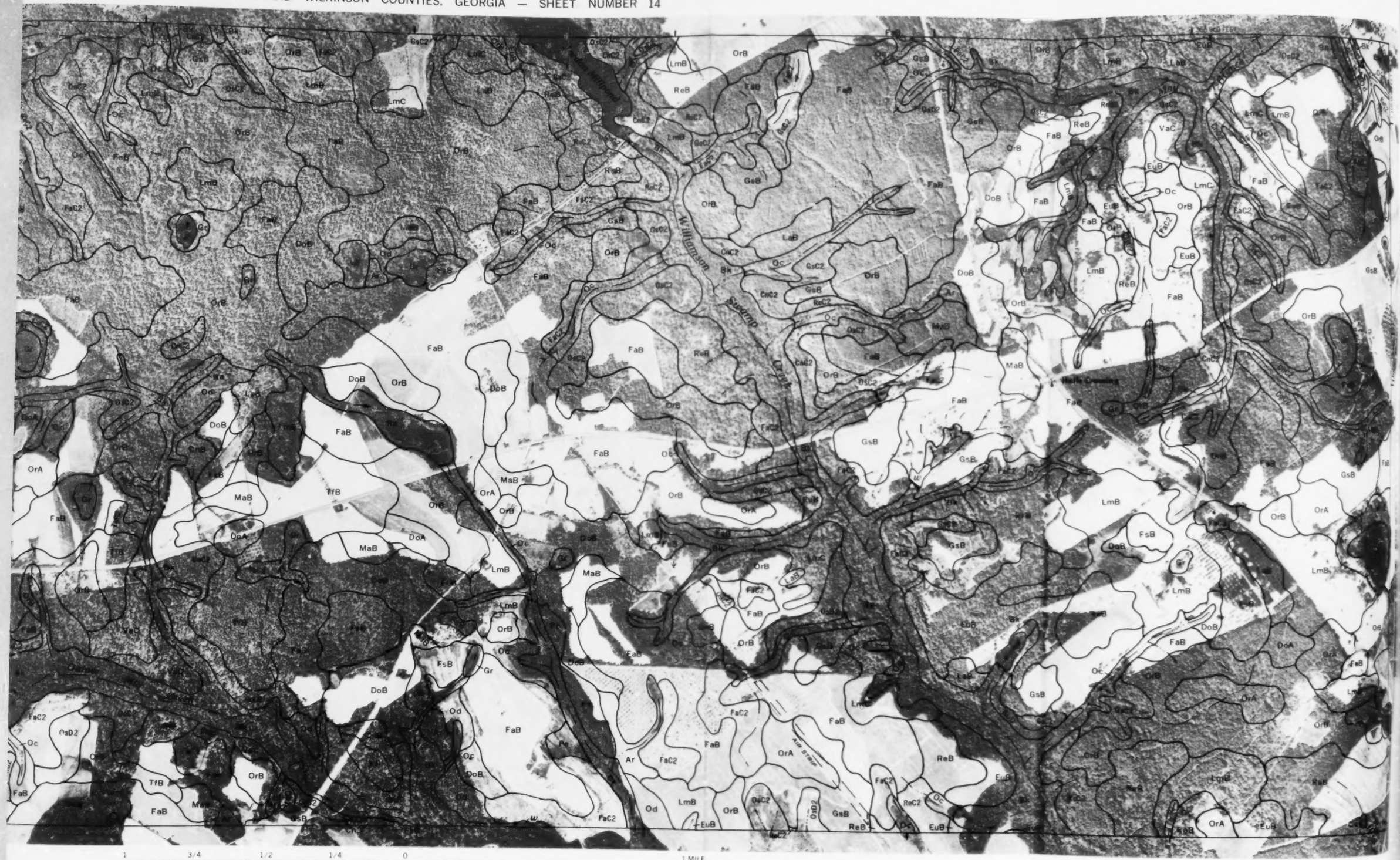
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 13

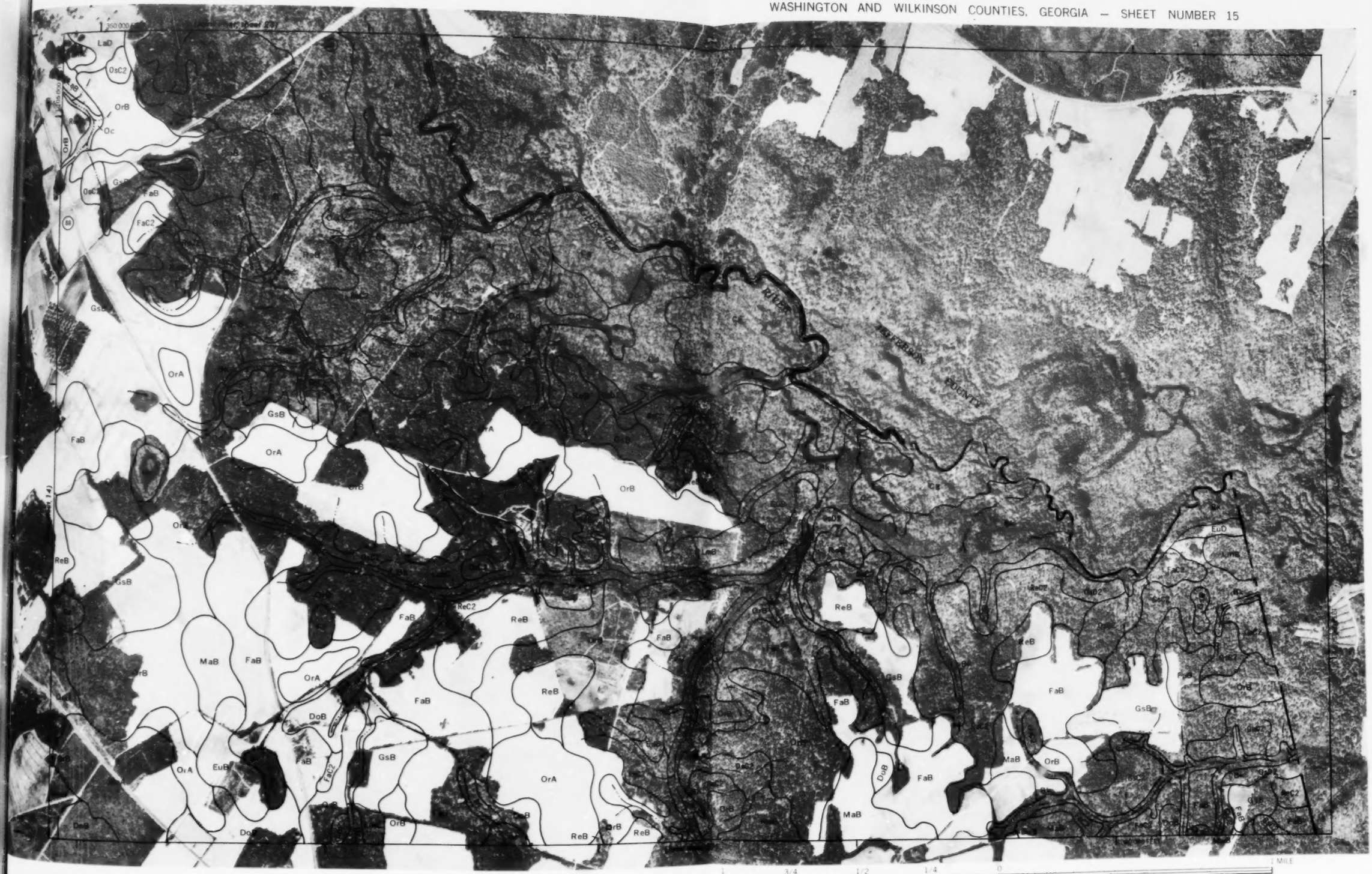

(Joins sheet 10)
(Joins sheet 13)
(Joins sheet 20)
Kitchell
Williamson
Wommack
water
OrA
OrB
OsC2
OsD2
LmB
LmC
ReB
ReC2
FaB
FaC2
DoB
DoA
TfB
MaB
EuB
LaB
GsB
GsC2
TsC2
CnB
CnC2
FsB
Bk
Gr
Oc
Od
Ar
Ra
0 1 MILE
0 1 KILOMETER
SCALE 1:20 000



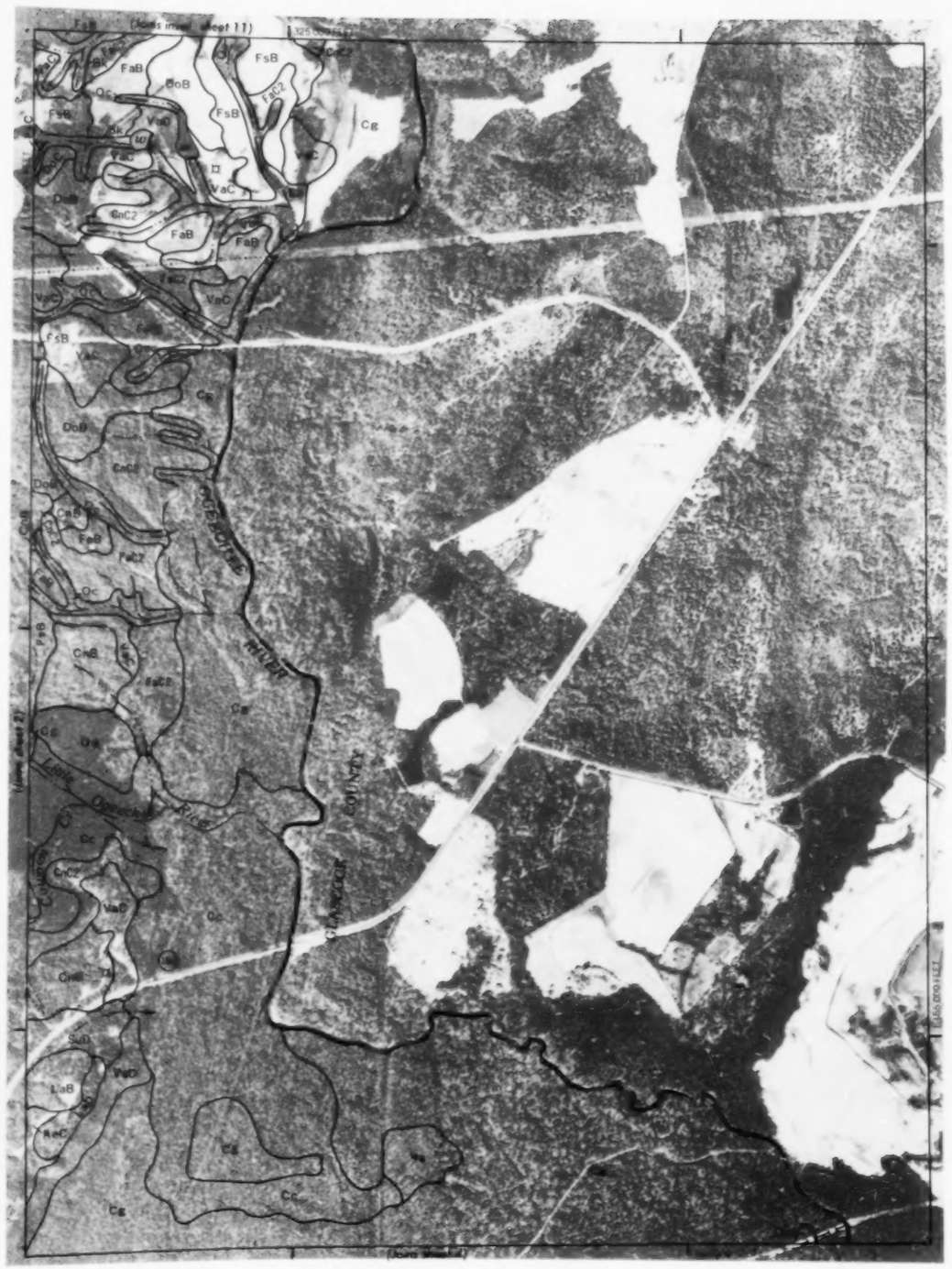
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000


LaD
OsC2
OrB
Oc
FaB
FaC2
GsB
OrA
ReB
ReC2
MaB
DoB
EuB
EuD
Ogeechee River
Ogeechee River
WASHINGTON COUNTY
1 MILE
1 KILOMETER
SCALE 1:20 000

N



1 3/4 1/2 1/4 0 1 MILE

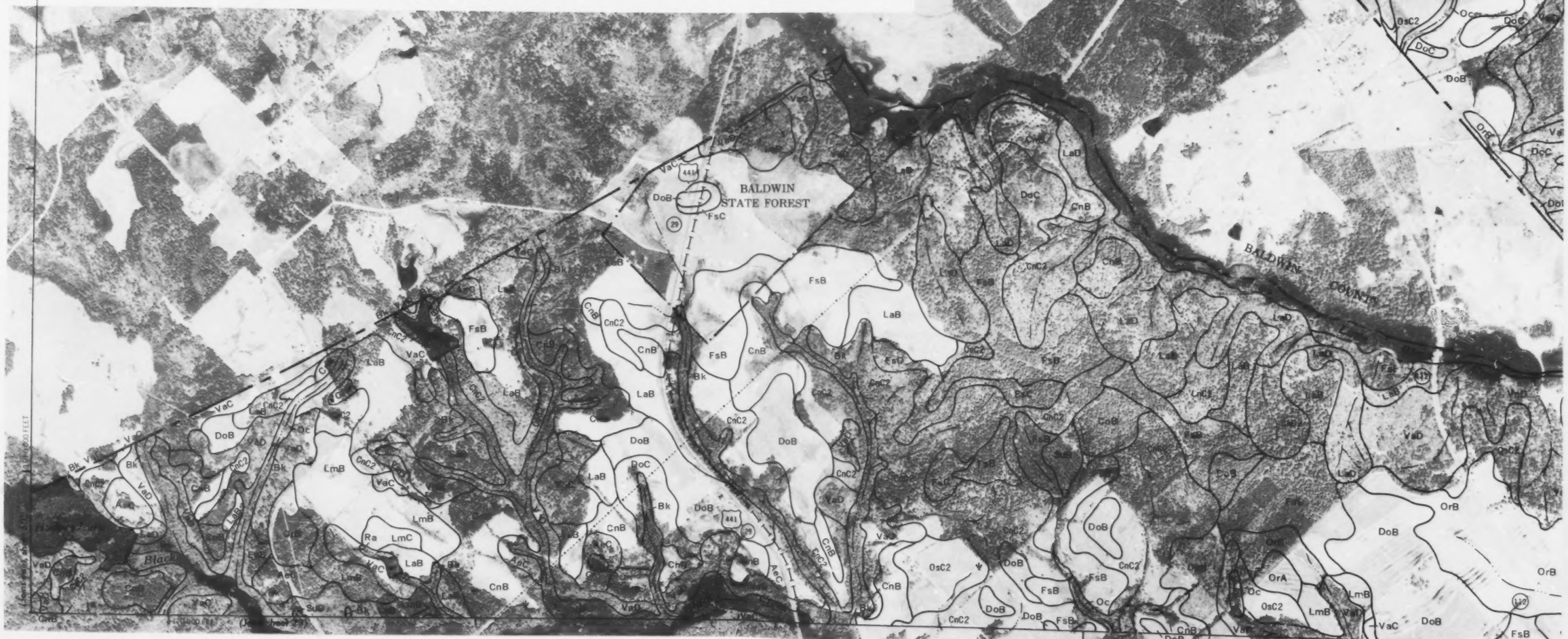
1 0.5 0 1 KILOMETER

SCALE 1:20 000

16

N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 16

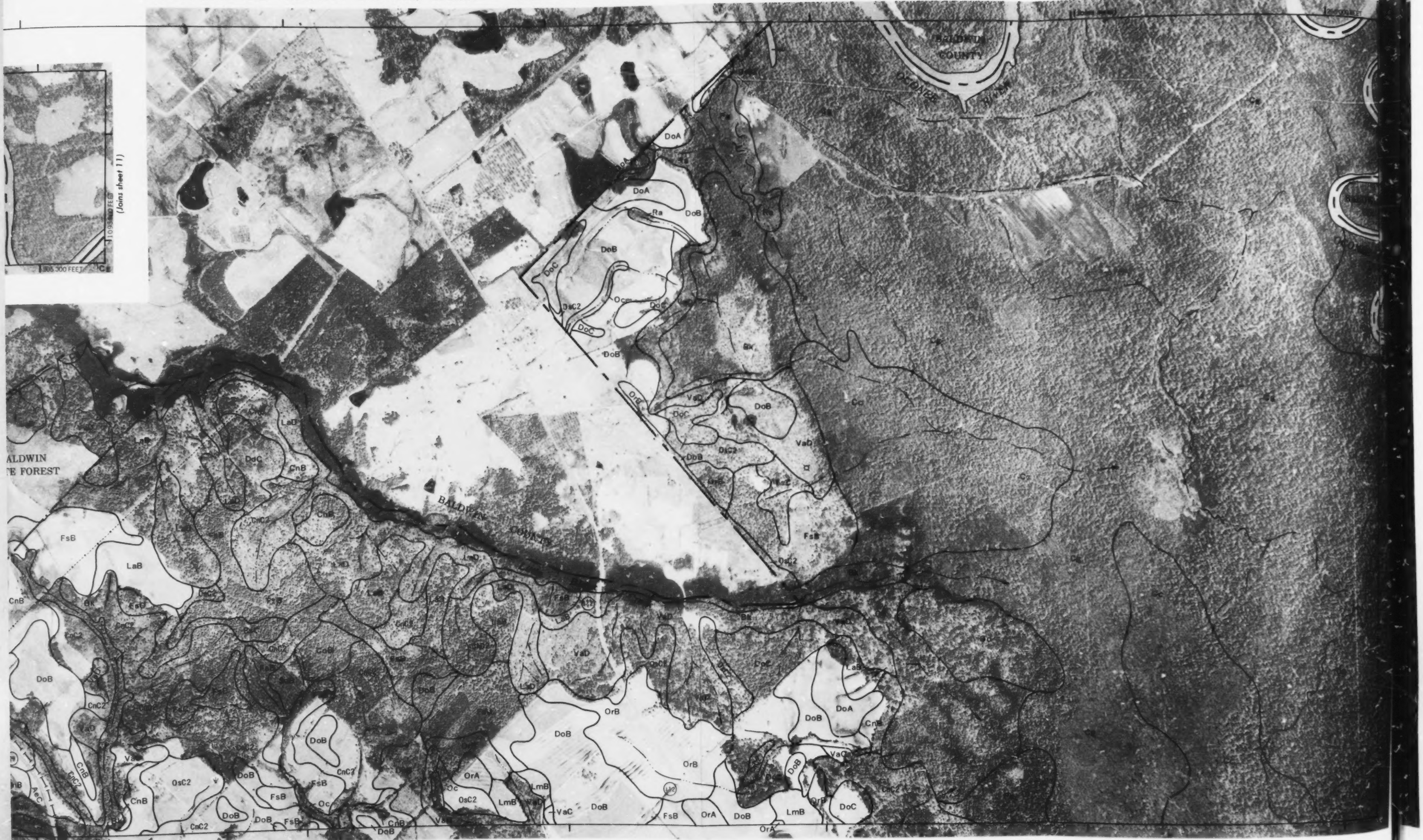


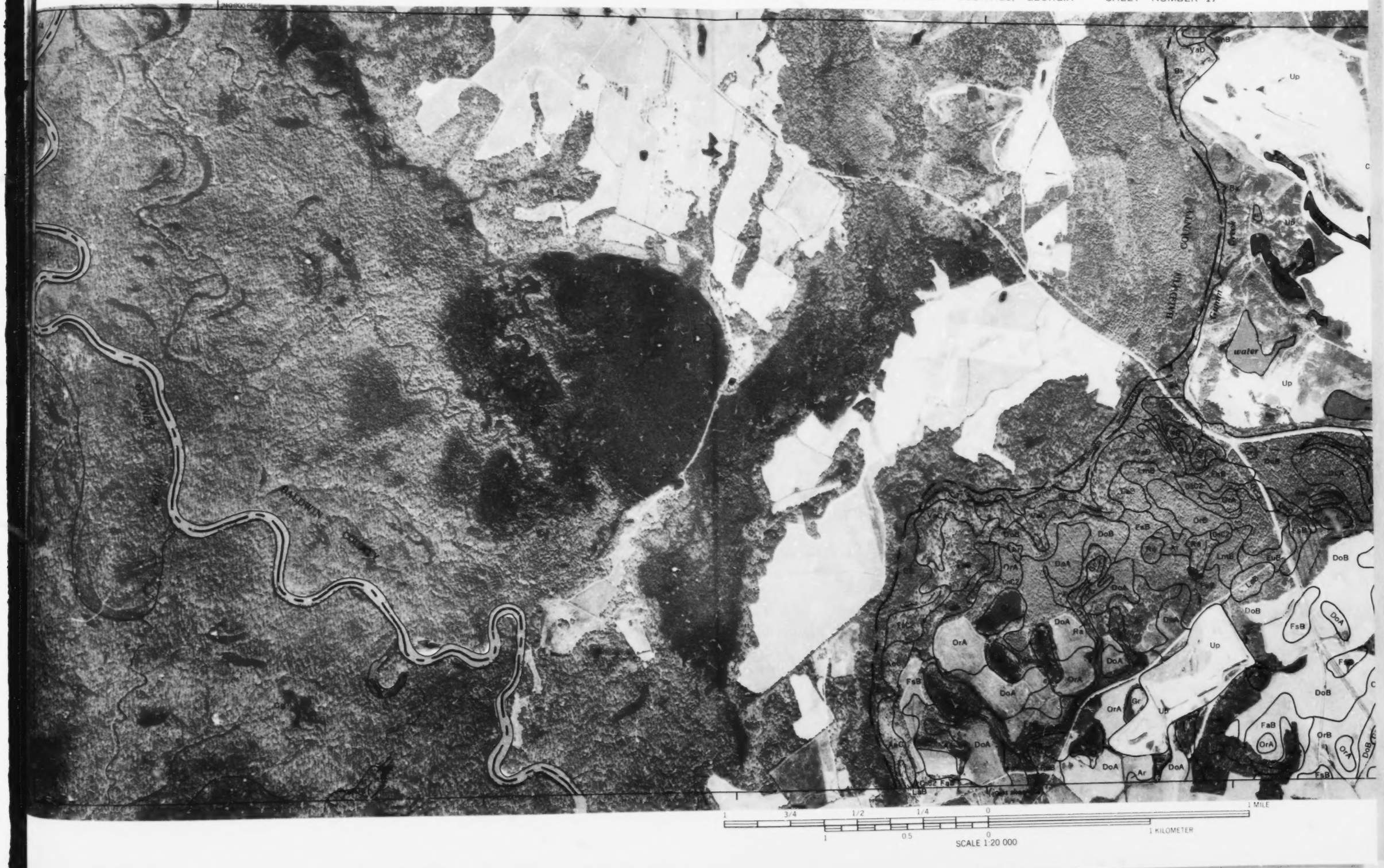
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 16




BALDWIN COUNTY
water
Up
DoA
DoB
OrA
FsB
Ar
Gr
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 17

17

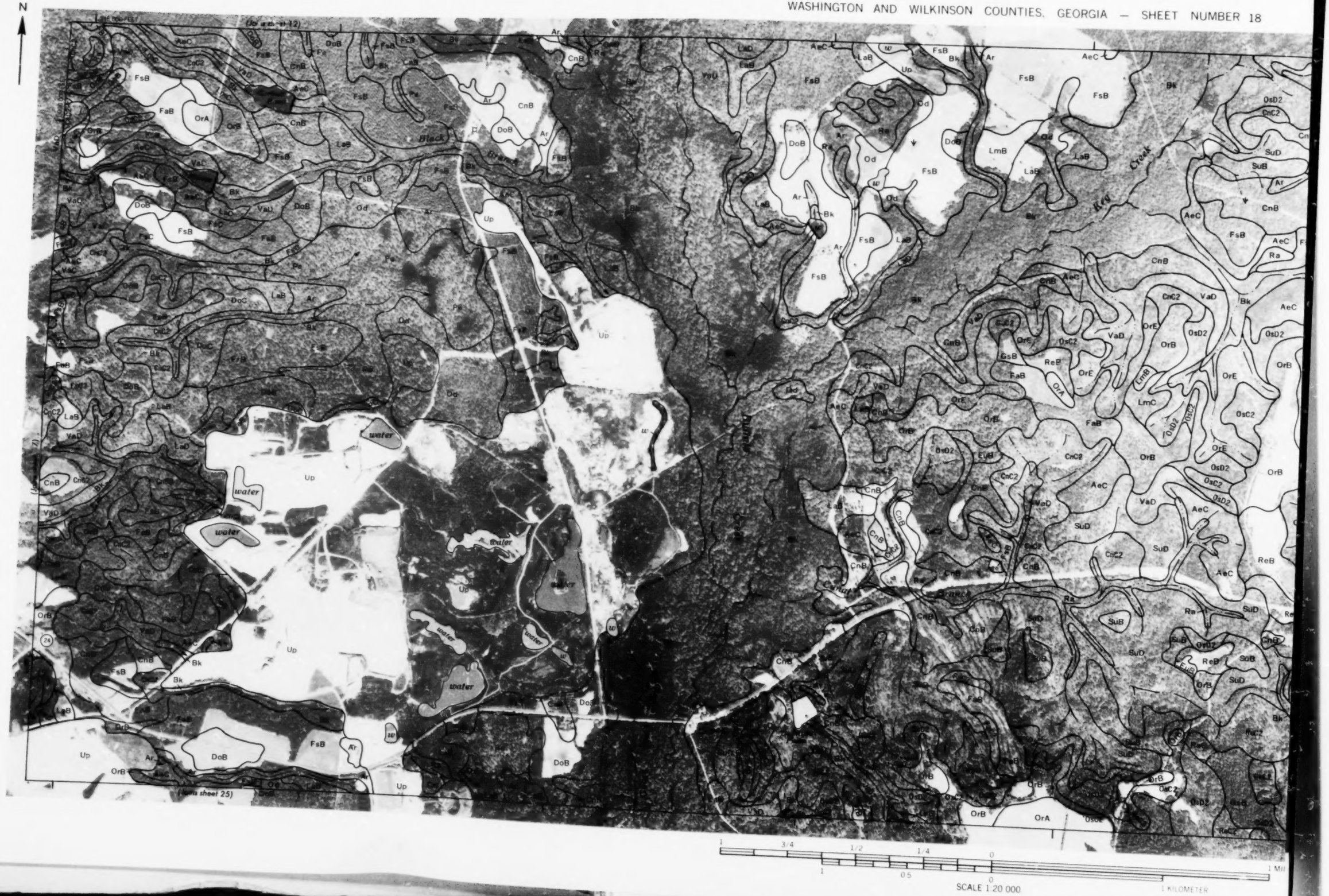
N

1 MILE

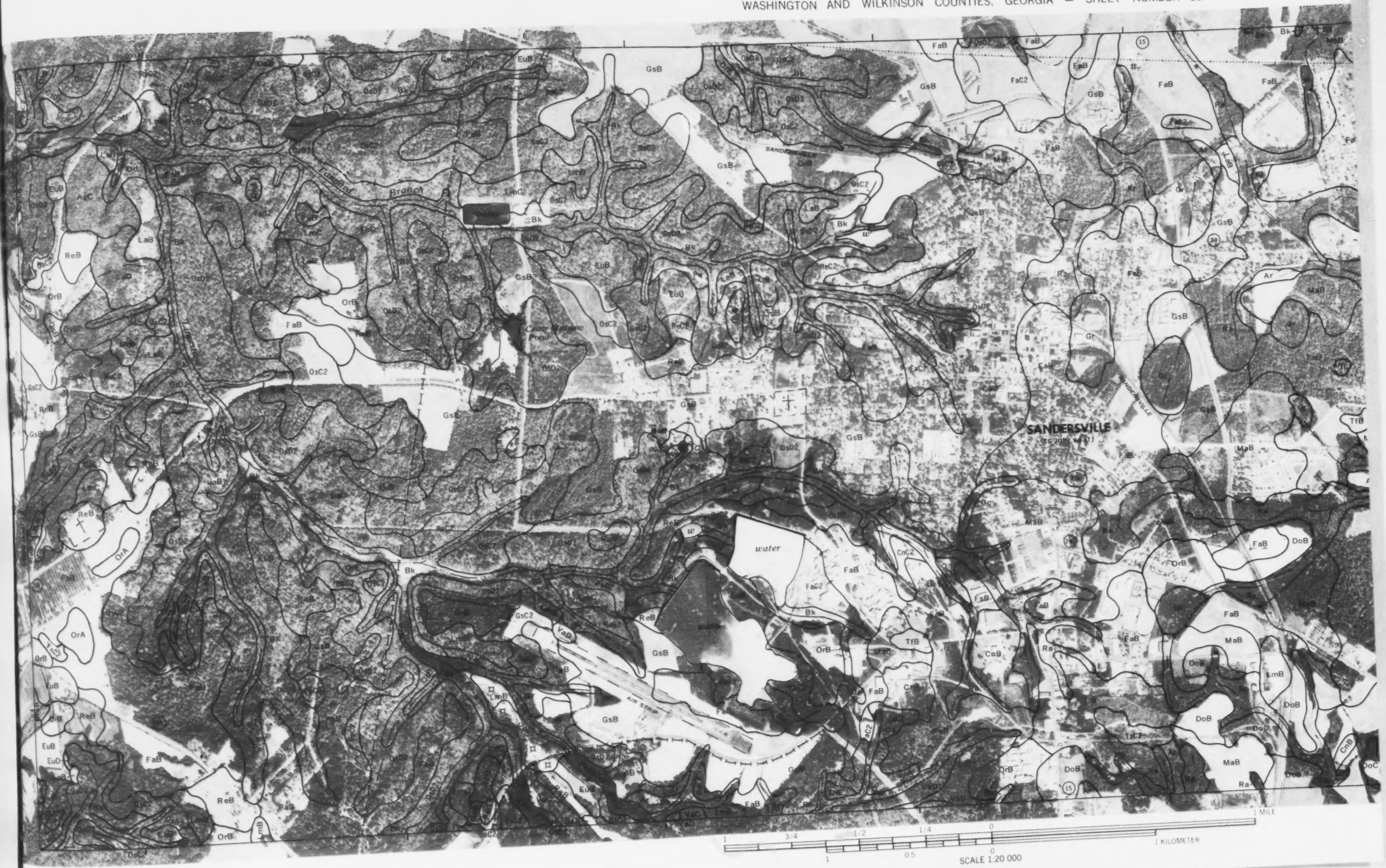
1 KILOMETER

SCALE 1:20 000

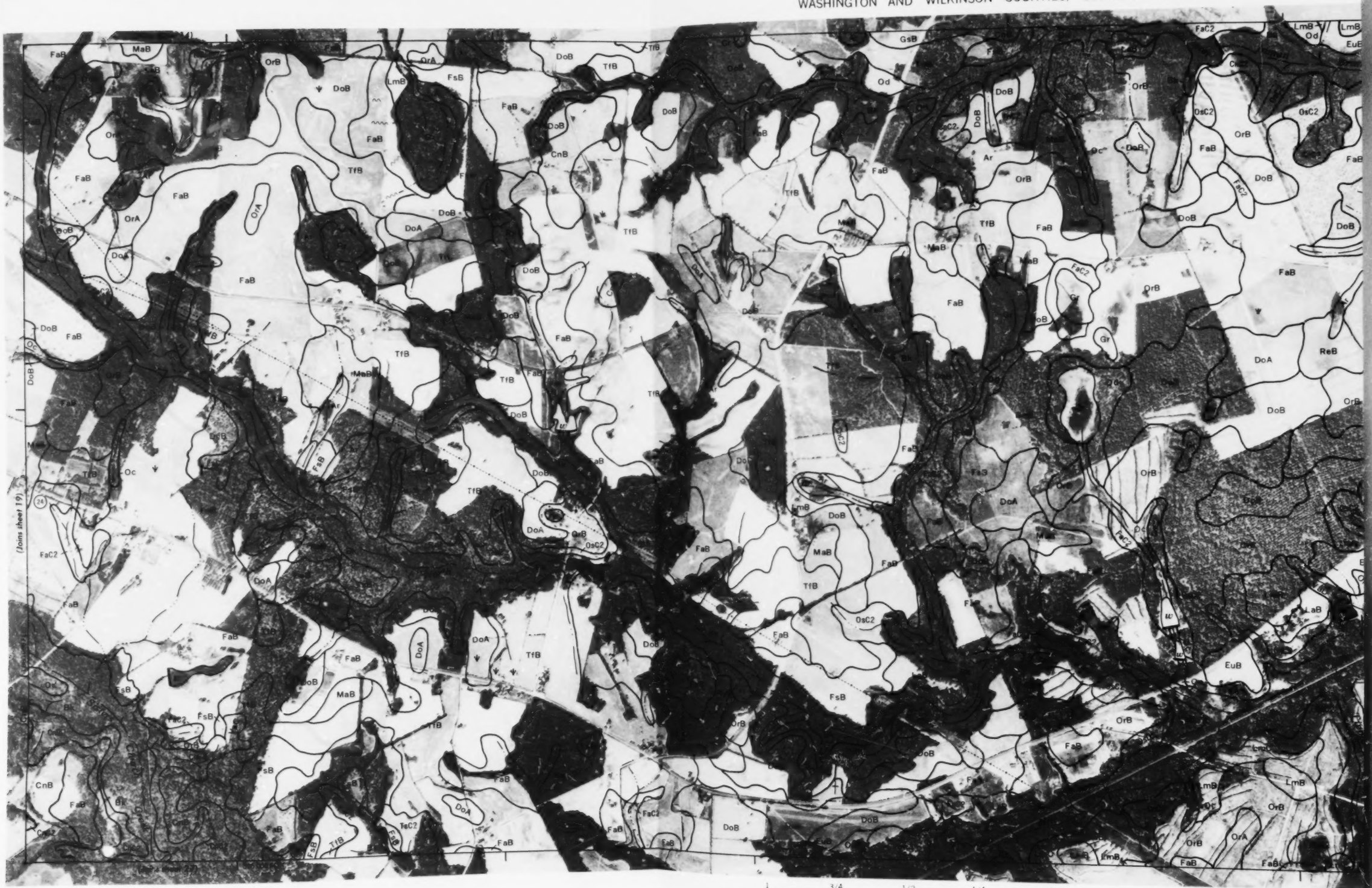
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 18

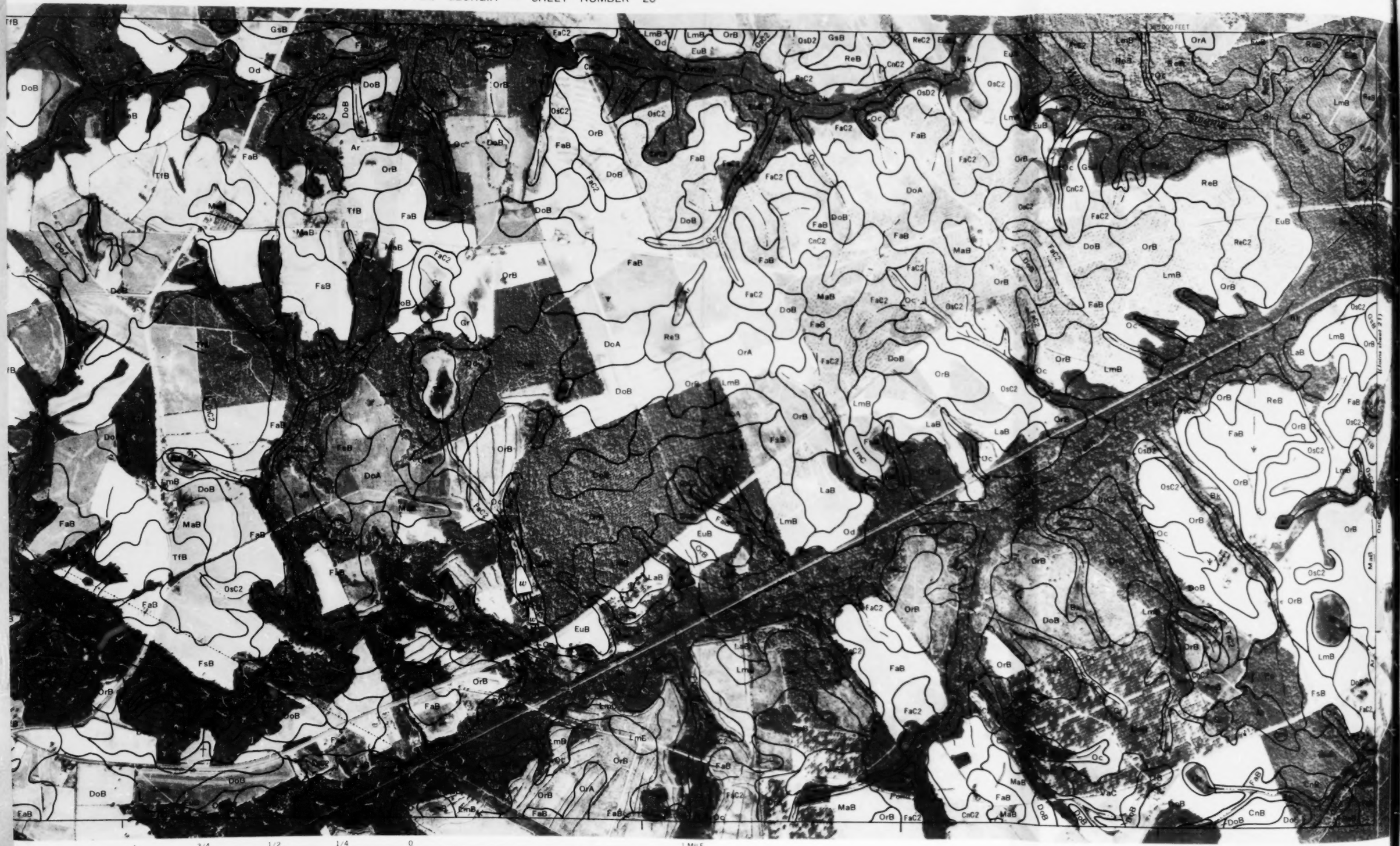


Reg Creek
Limestone
Creek
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000


SANDERSVILLE
(see page 21)
water
AIR STRIP
Tarrant Branch
Cleary Waterfowl Pond
SANDERSVILLE
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 19

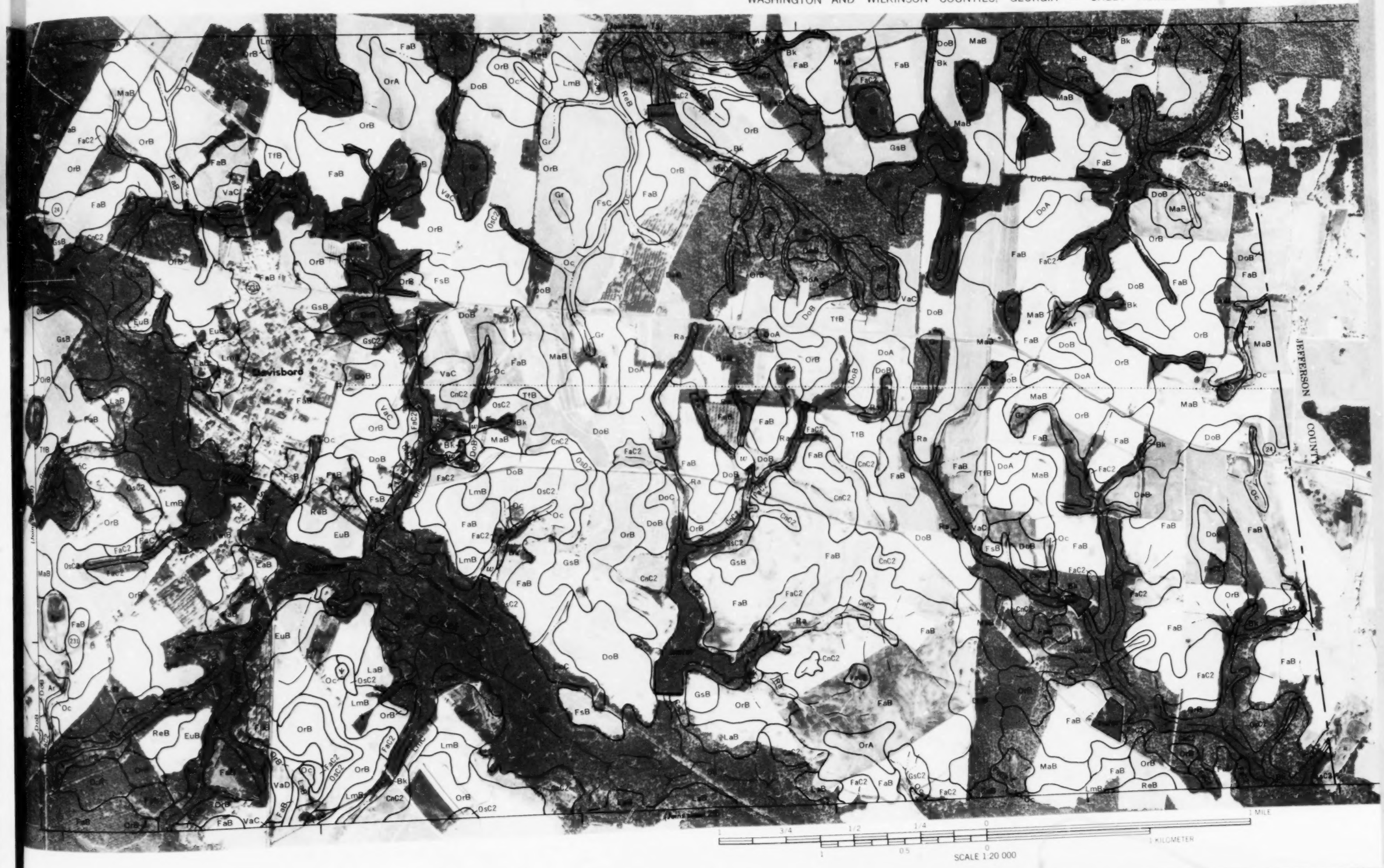

20
N
(Joins sheet 19)
(Joins sheet 21)
FaB
MaB
OrB
DoB
TfB
OrA
FsB
LmB
CnB
DoA
Od
GsB
FaC2
OsC2
Ar
Oc
Gr
ReB
EuB
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000



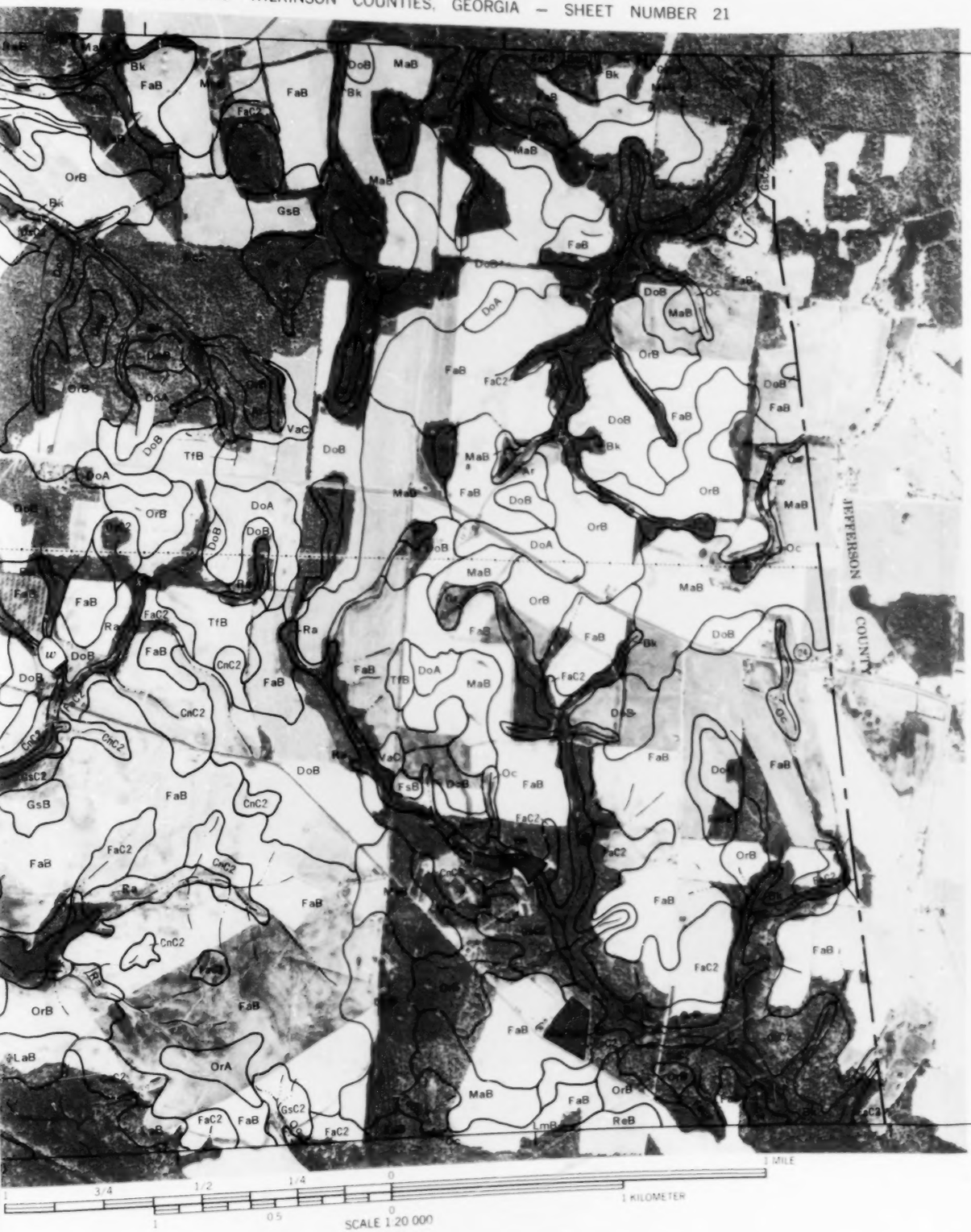
1 3/4 1/2 1/4 0 1 MILE

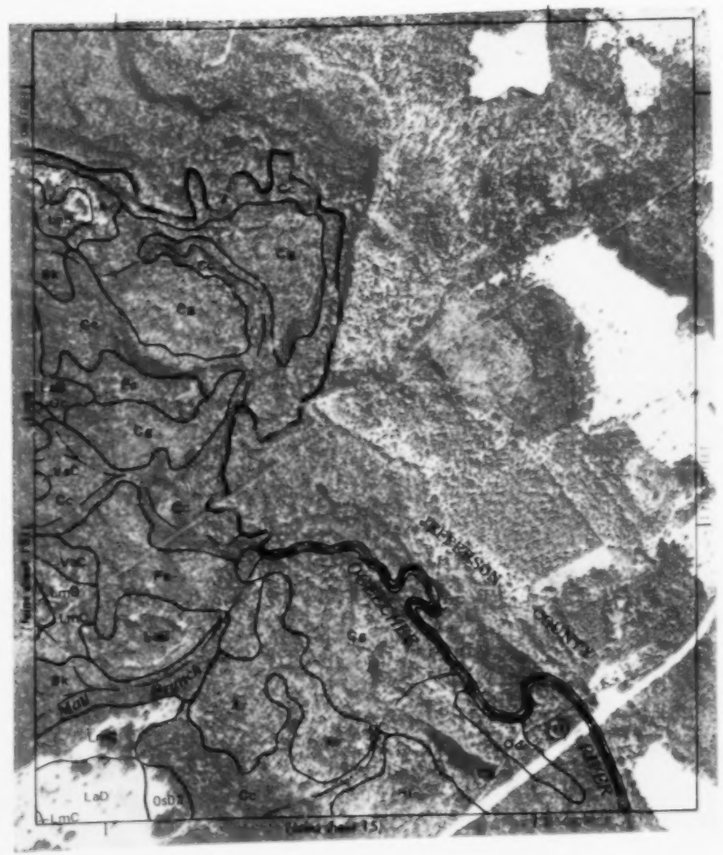
1 0.5 0 1 KILOMETER

SCALE 1:20,000


Davisboro
JEFFERSON COUNTY
1 MILE
1 KILOMETER
SCALE 1:20 000

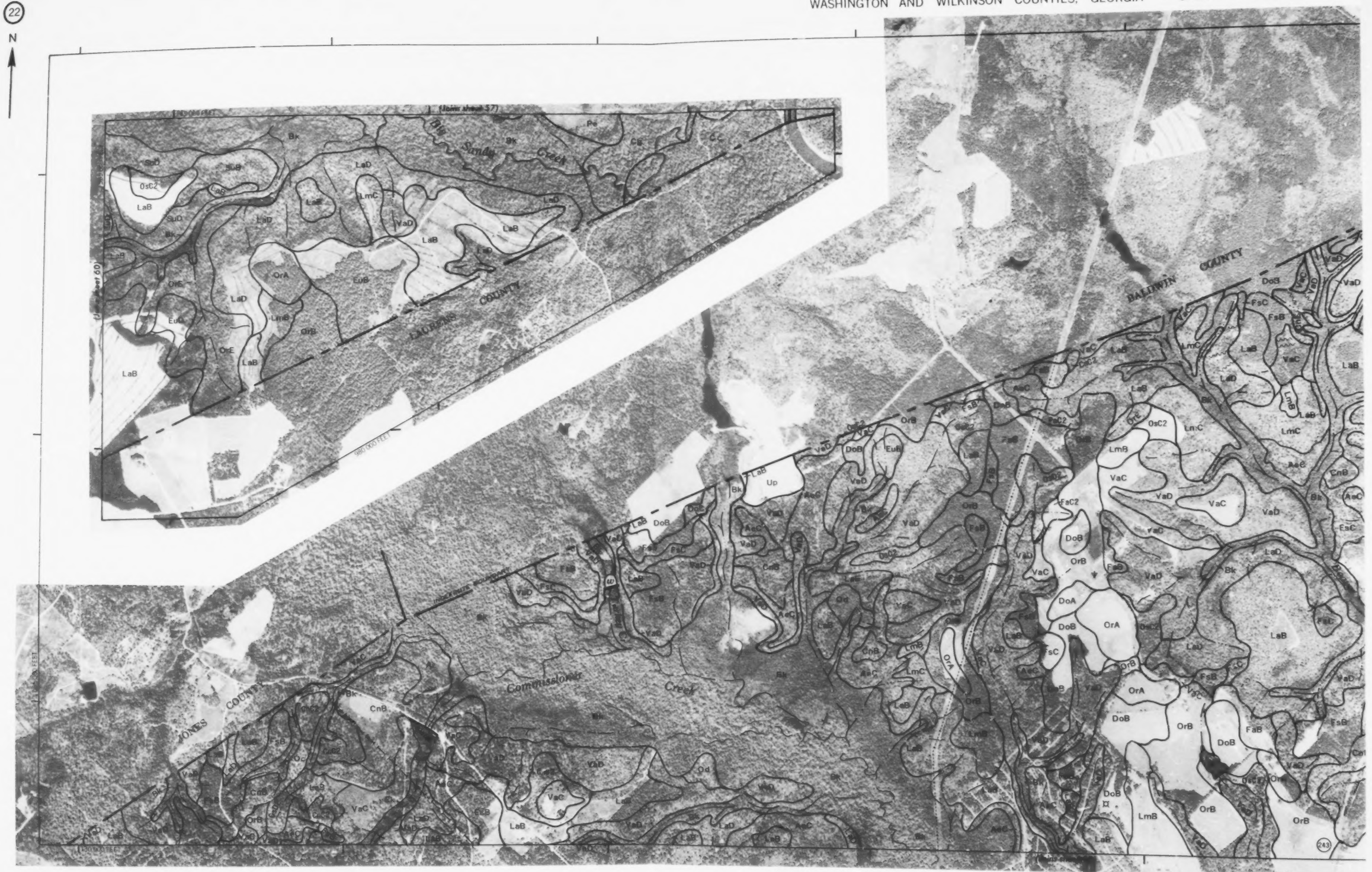
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 21





21

N



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

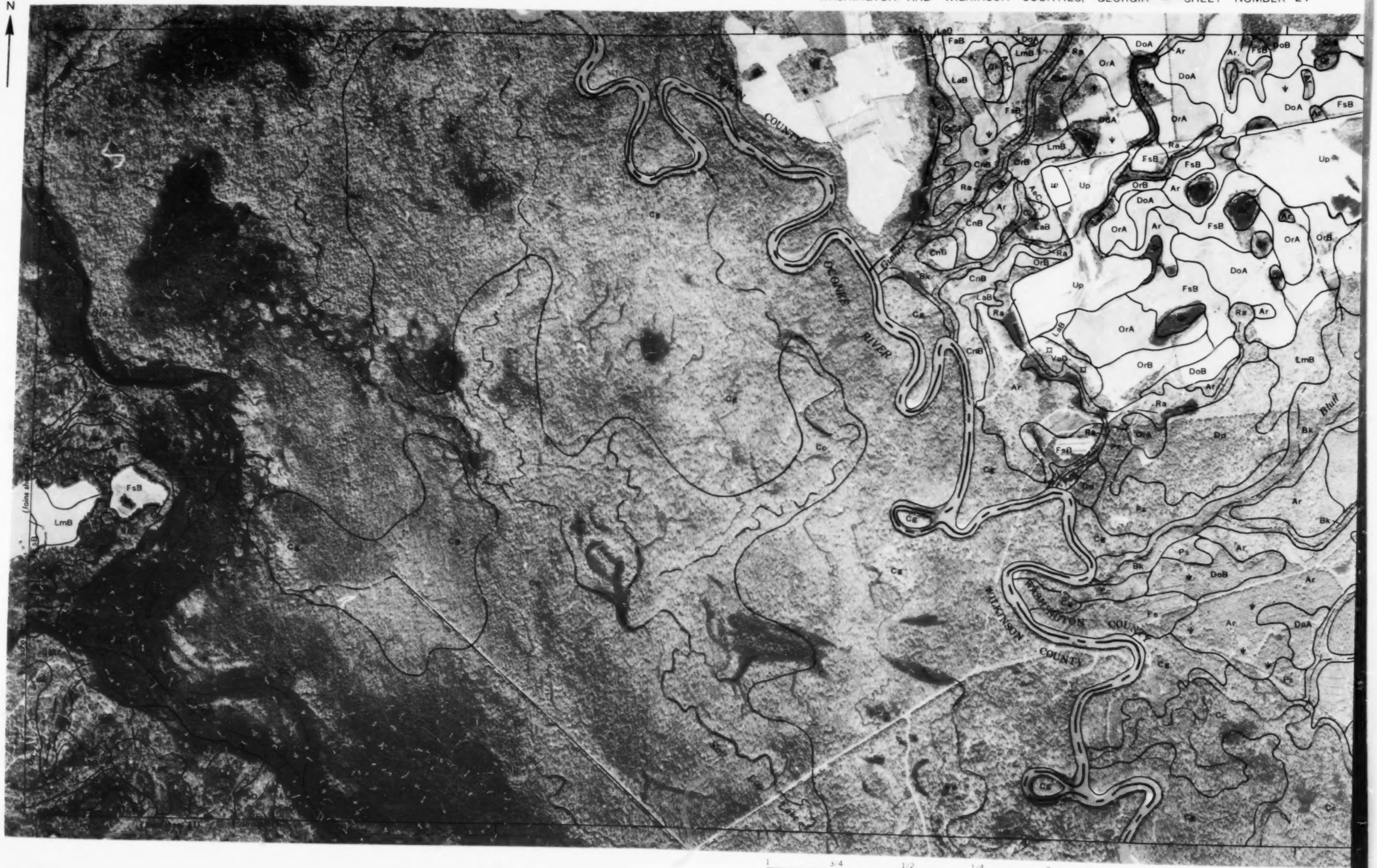
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 22

1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 23

N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 24



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 24

245 000 FEET
Up
AeC
VaC
Ar
DoB
Od
LaB
OrB
FsB
DoA
CnB
Ra
Pe
Ps
Bk
ReB
GsB
ReC2
OsD2
OsC2
OrA
OrE
LmB
LaD
EuB
SuB
SuD
VaD
ChC2
Thompkins
Branch
Creek
Branch
Branch
Branch
272
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

N

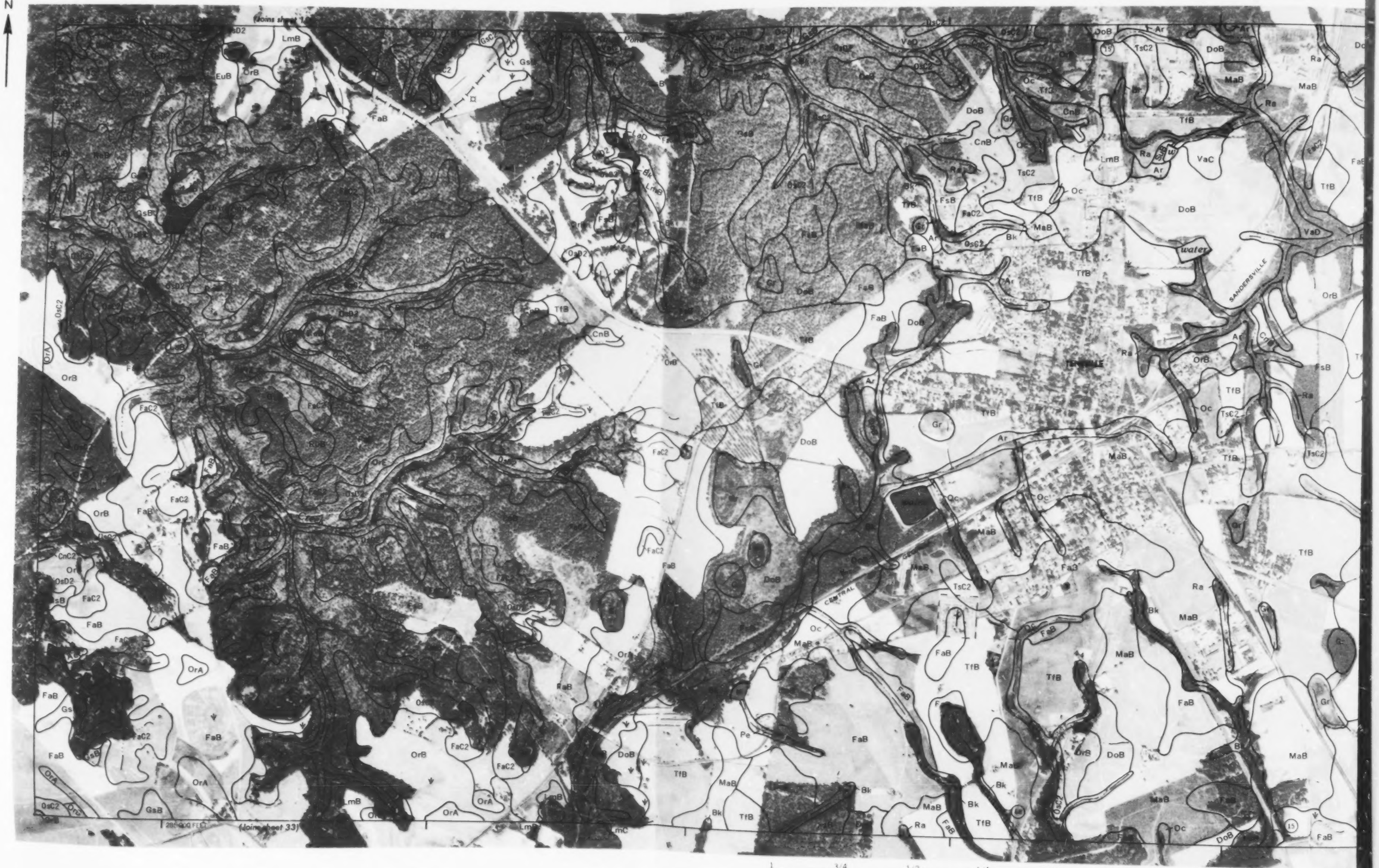
1 MILE

1 3/4 1/2 1/4 0

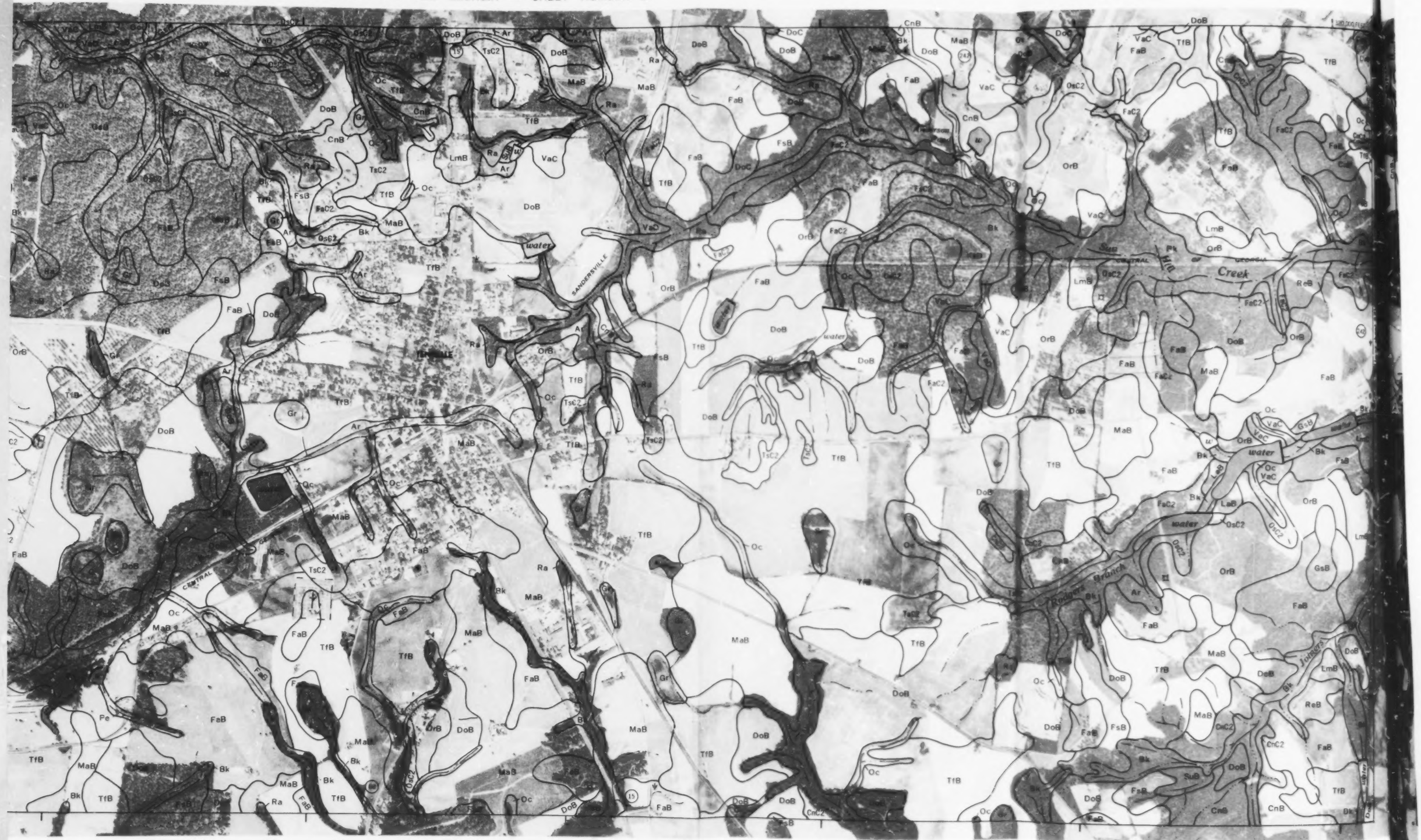
1 KILOMETER

1 0.5 0

SCALE 1:20 000


N
(Joins sheet 18)
(Joins sheet 33)
water
SANDERSVILLE
TENNILLE
CENTRAL
SCALE 1:20 000
1 KILOMETER

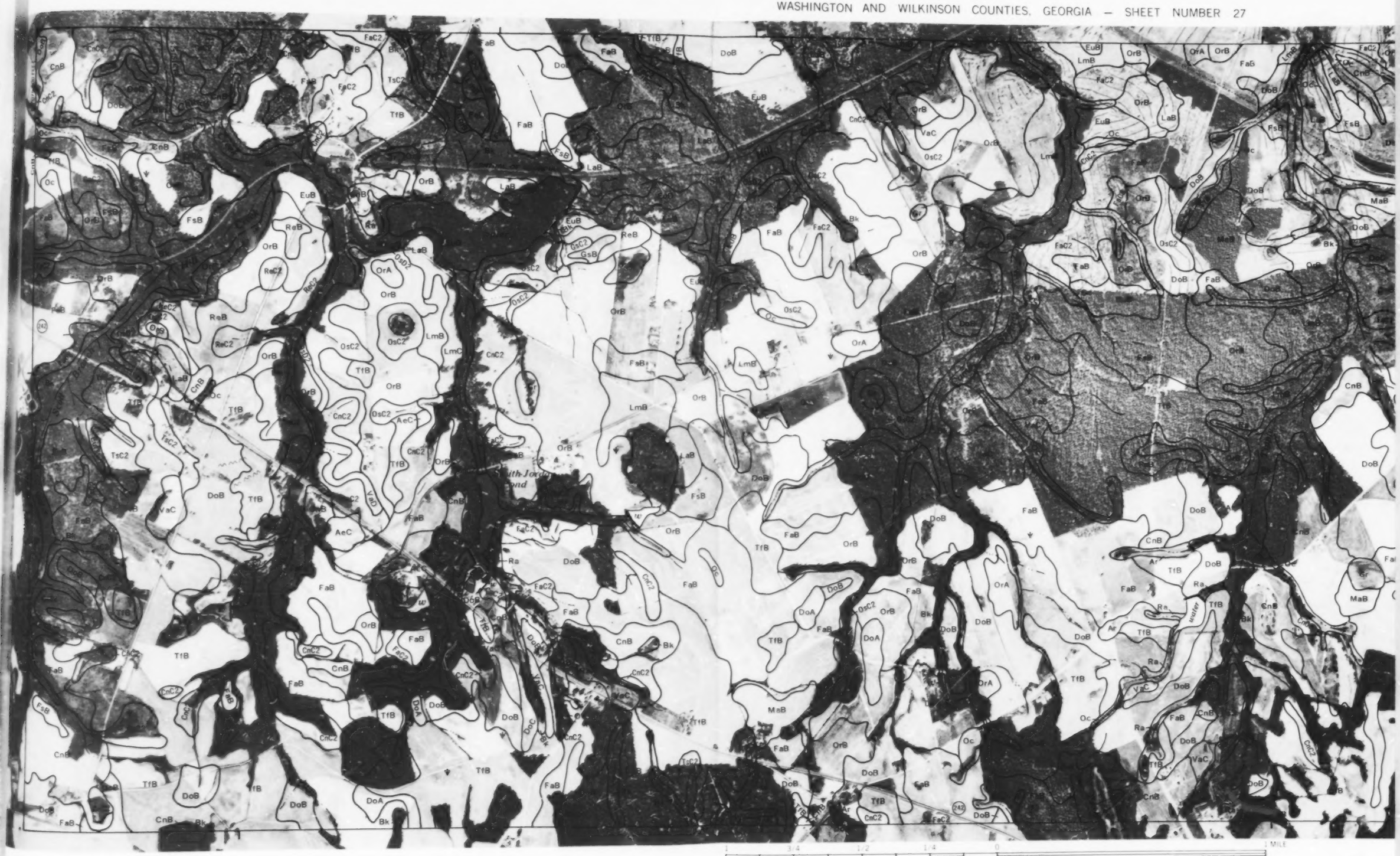
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 26



1 3/4 1/2 1/4 0 1 MILE

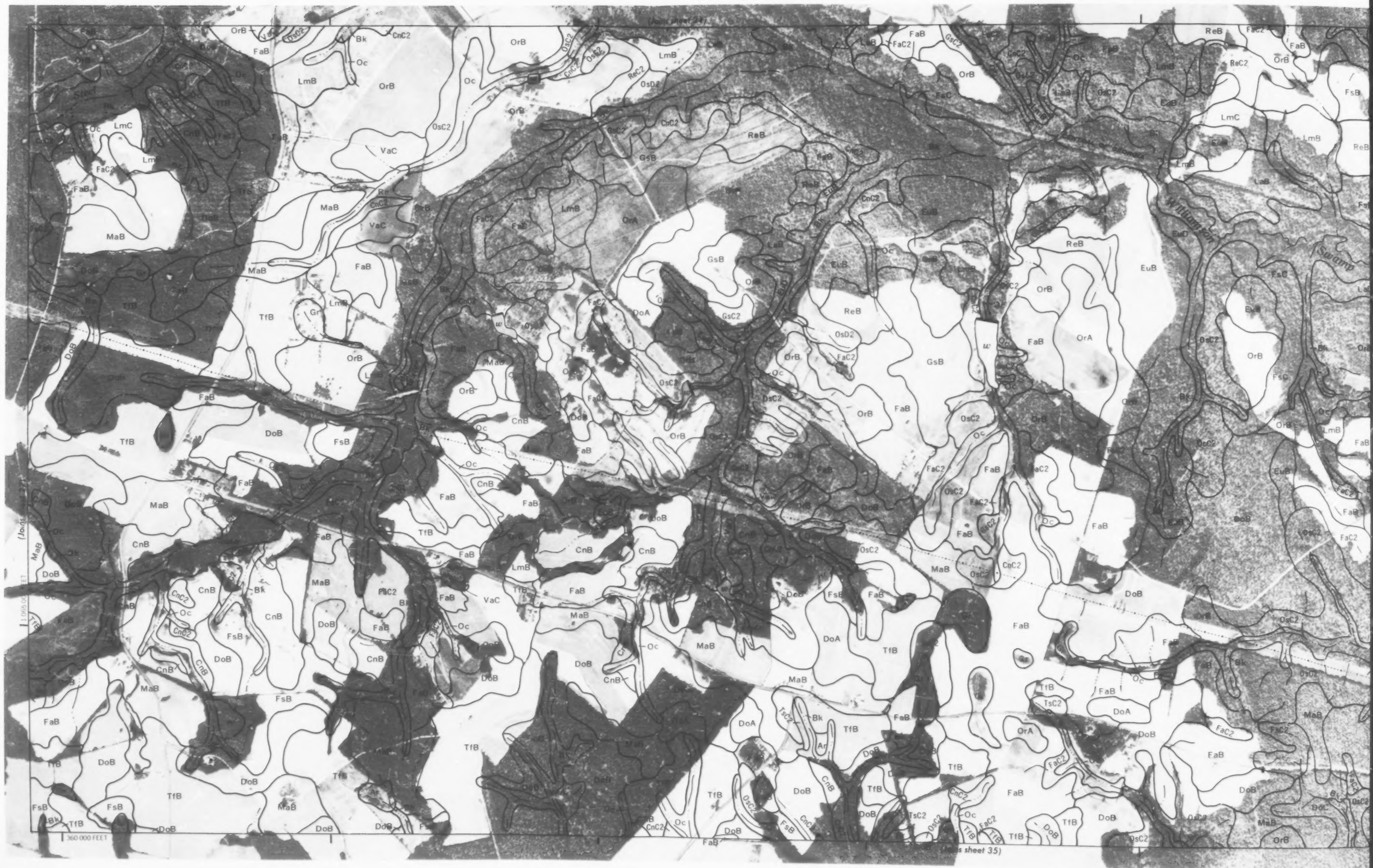
1 0.5 0 1 KILOMETER

SCALE 1:20 000


CnB
CnC2
DoB
FaB
FaC2
TfB
TsC2
EuB
FsB
LaB
OrB
ReB
RaC2
OsC2
OrA
LmB
LmC
AeC
VaC
GsB
GsC2
Bk
DoA
MaB
Oc
Ra
Ar
242
SCALE 1:20 000

N
(Joins sheet 20)
Johnsons Pond
DoB
EuB
CnC2
OrB
VaC
OsC2
FaB
FaC2
Bk
OsC2
Oc
OrA
LmB
TfB
DoA
MaB
CnB
1 MILE
1 KILOMETER
SCALE 1:20 000

N


Stout
Swamp
W. Thompson
Swamp
(Joins sheet 24)
(Joins sheet 35)
360 000 FEET
OrB
FaB
Bk
CnC2
Oc
LmB
OsC2
VaC
ReB
GsB
ChC2
OrA
FaC2
MaB
TfB
DoB
FsB
CnB
EuB
GsC2
OsD2
ReC2
LmC
DoA
TsC2
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

LmB
FaB
FaC2
GsC2
OrB
CnC2
ReB
LaB
EuB
GsB
OsD2
DsC2
OsC2
Oc
MaB
DoB
FsB
DoA
TfB
TsC2
Bk
Ar
CnB
LmC
FsB
Williamson Swamp Creek
PETERSON COUNTY
(Joins sheet 35)
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

N

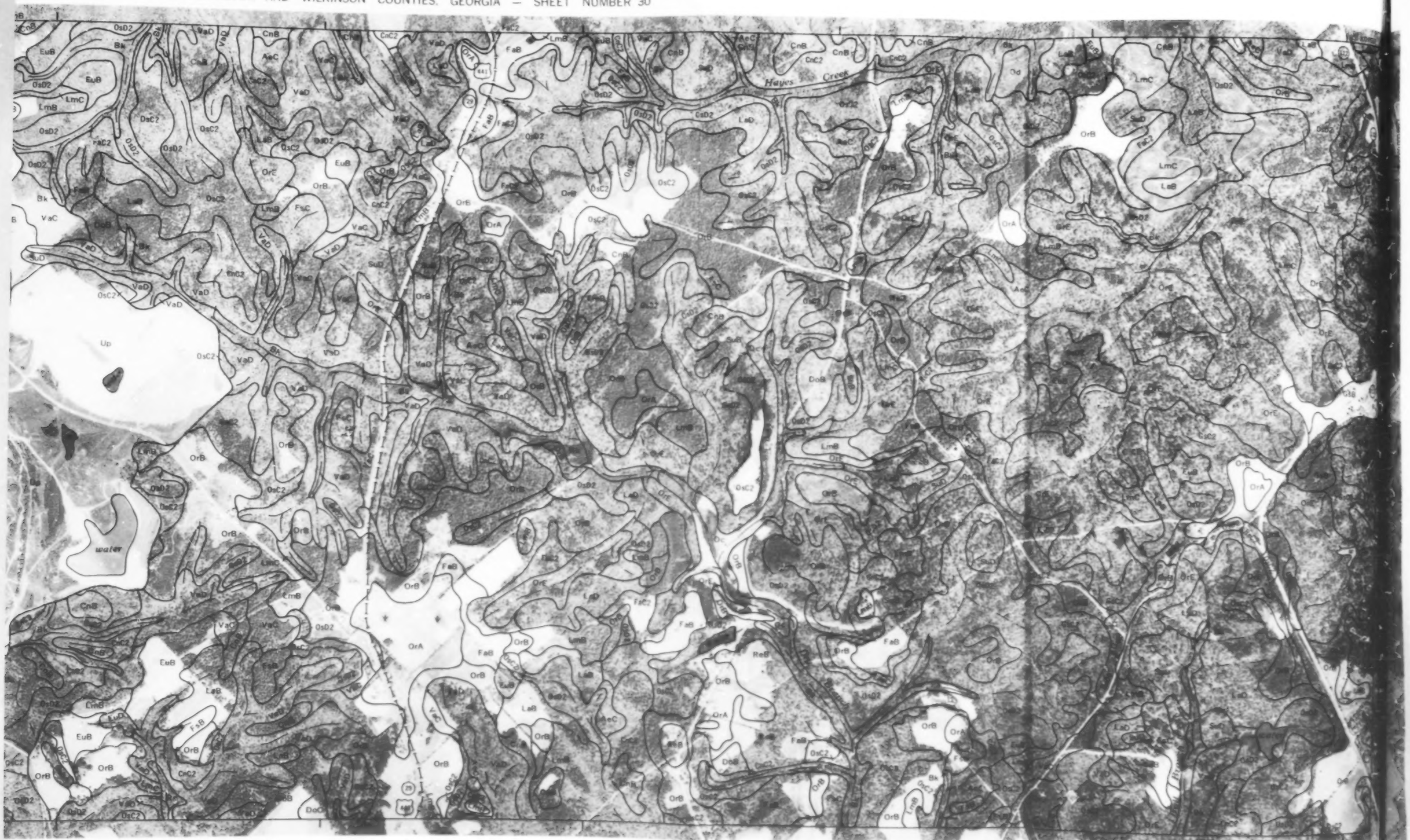
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

(Joins sheet 23)
(Joins sheet 29)
(Joins sheet 37)
Commissioner Creek
Lamb Branch
water
Up
SCALE 1:20 000
KILOMETER

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 30



1 3/4 1/2 1/4 0 1 MILE

1 0 1 KILOMETER

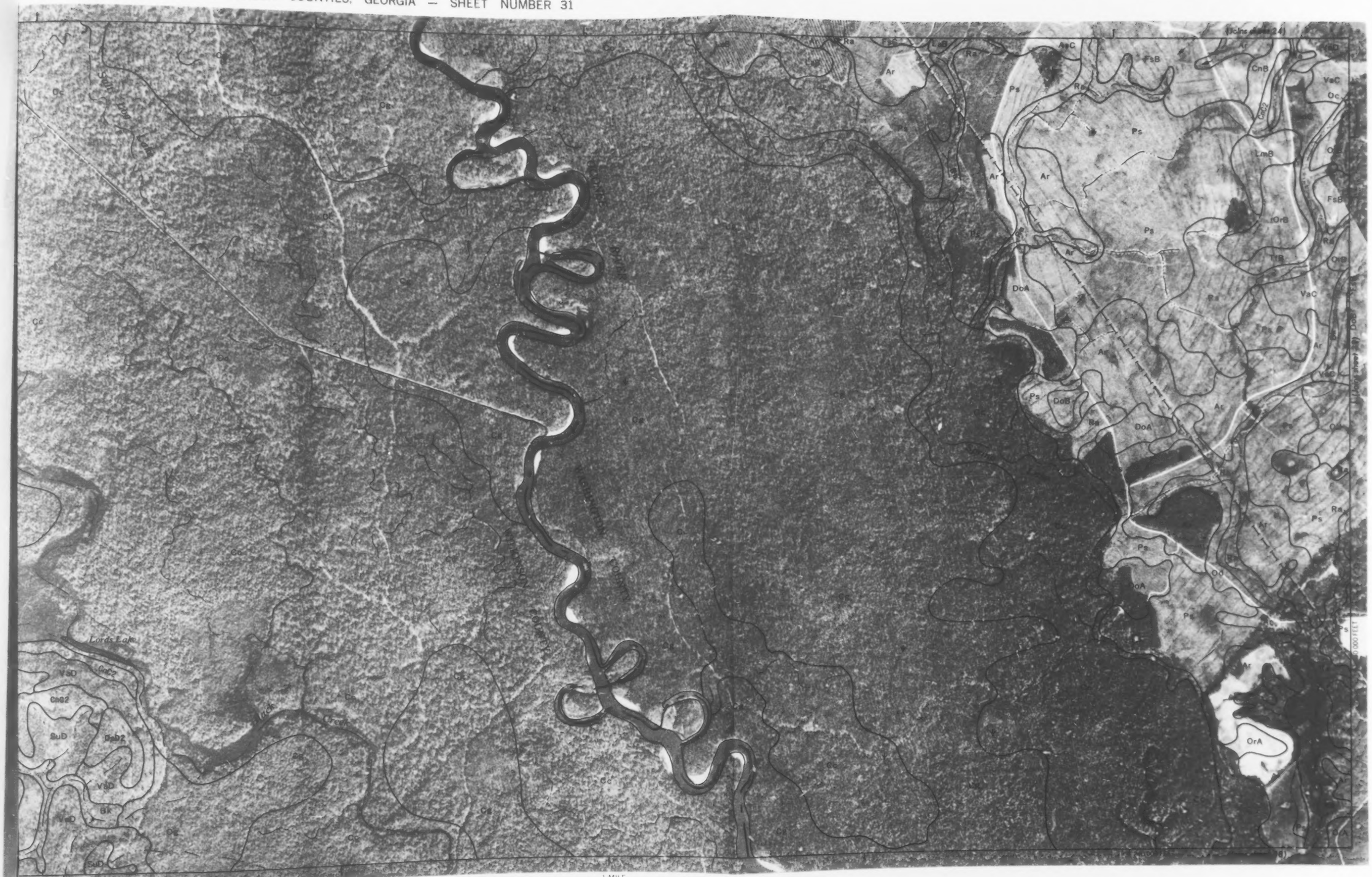
SCALE 1:20 000

Up
water
Buck
Lords Lake
Buck Creek
Cc
Ce
Ca
Bk
OrB
OrE
OsC2
VaD
LaB
LaD
LmC
EuD
SuD
DoC
FeB
1 MILE
1 KILOMETER
SCALE 1:20 000

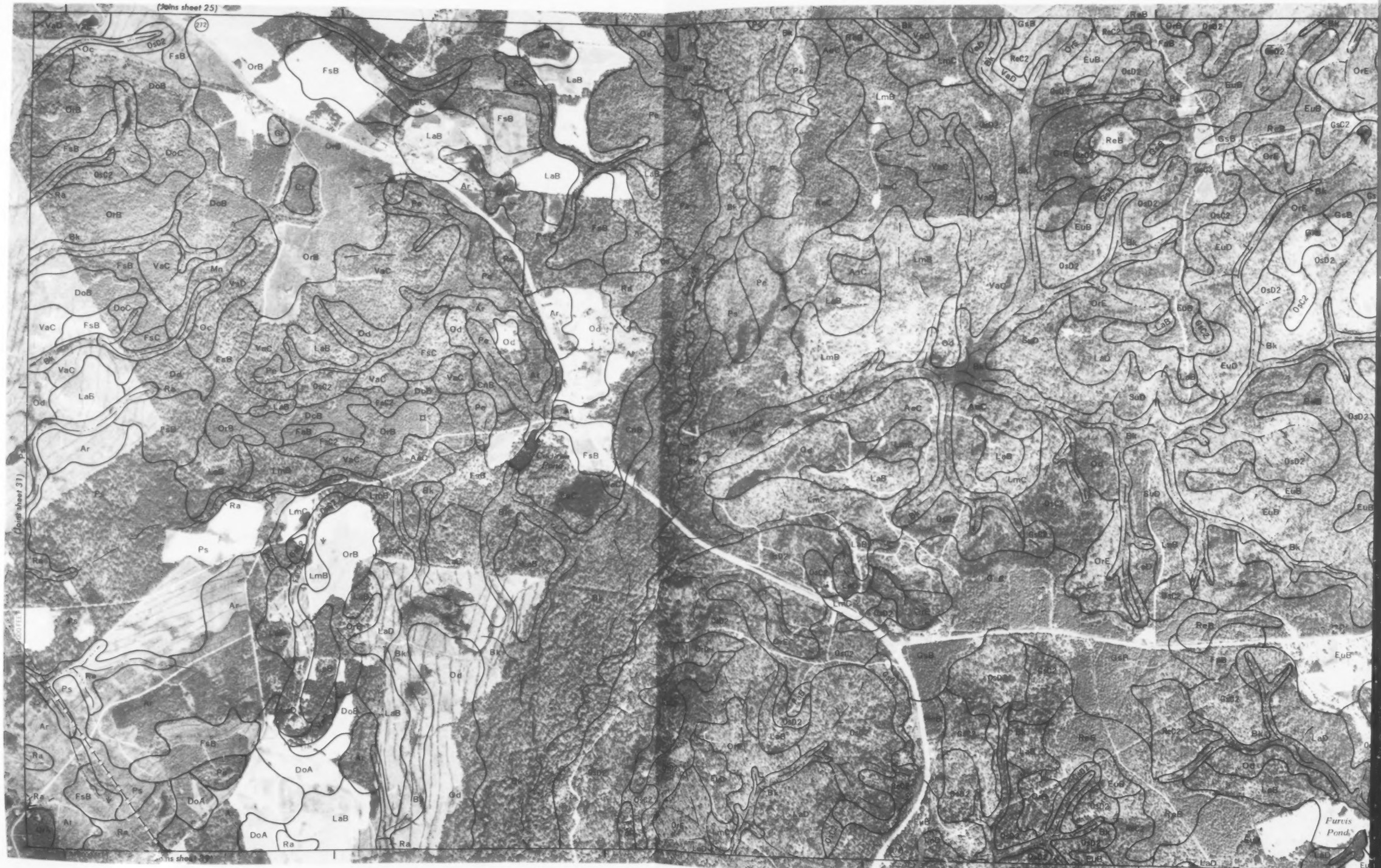
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 31

31

N



N

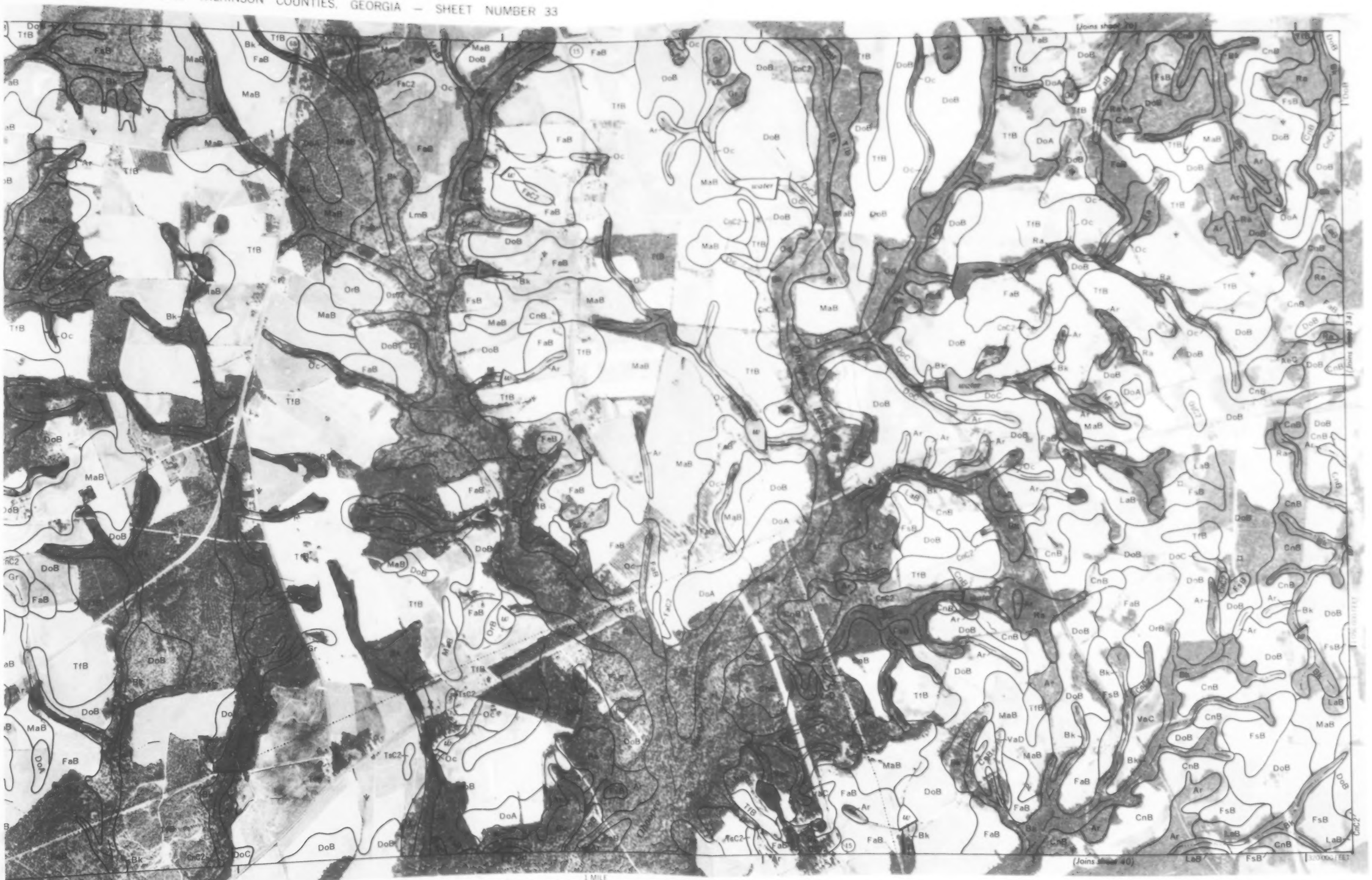

(Joins sheet 25)
(Joins sheet 31)
Furvis Pond
SCALE 1:20 000
1 KILOMETER
1 MILE

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 32

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 33

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 33



N

(Joins sheet 27)

(Joins sheet 33)

(Joins sheet 41)

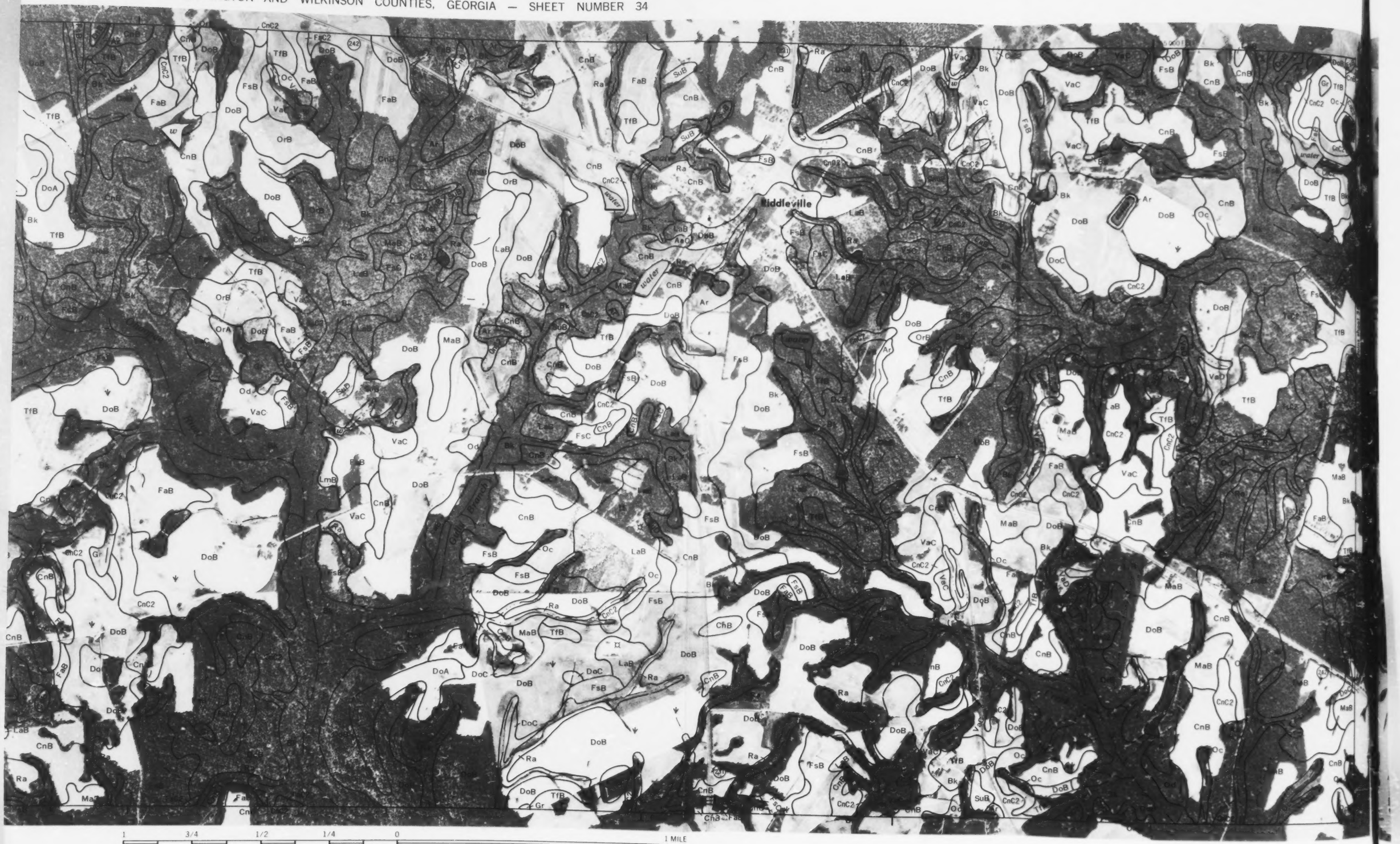
1 000 000 FEET

1 3/4 1/2 1/4 0 1 MILE

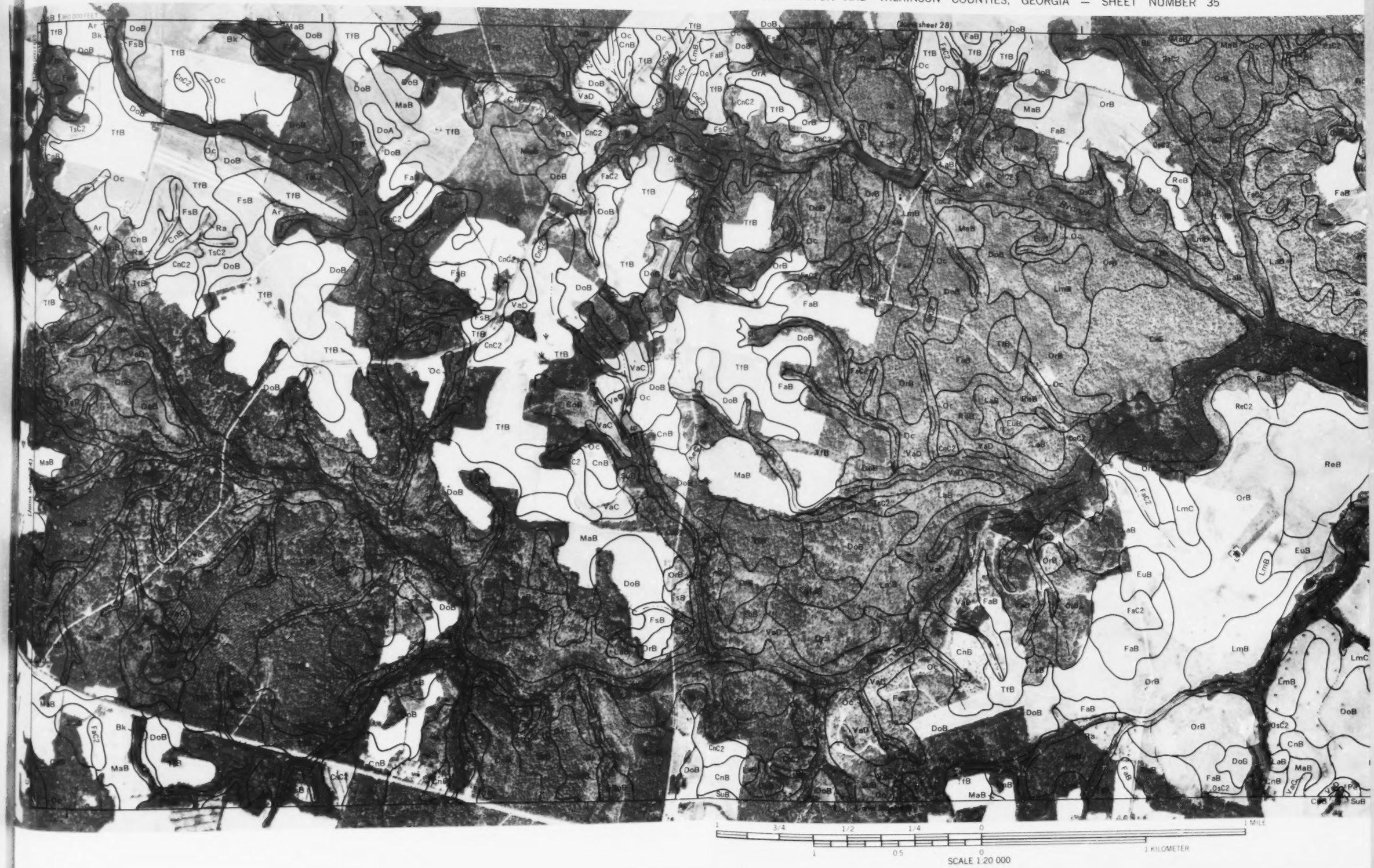
1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 34

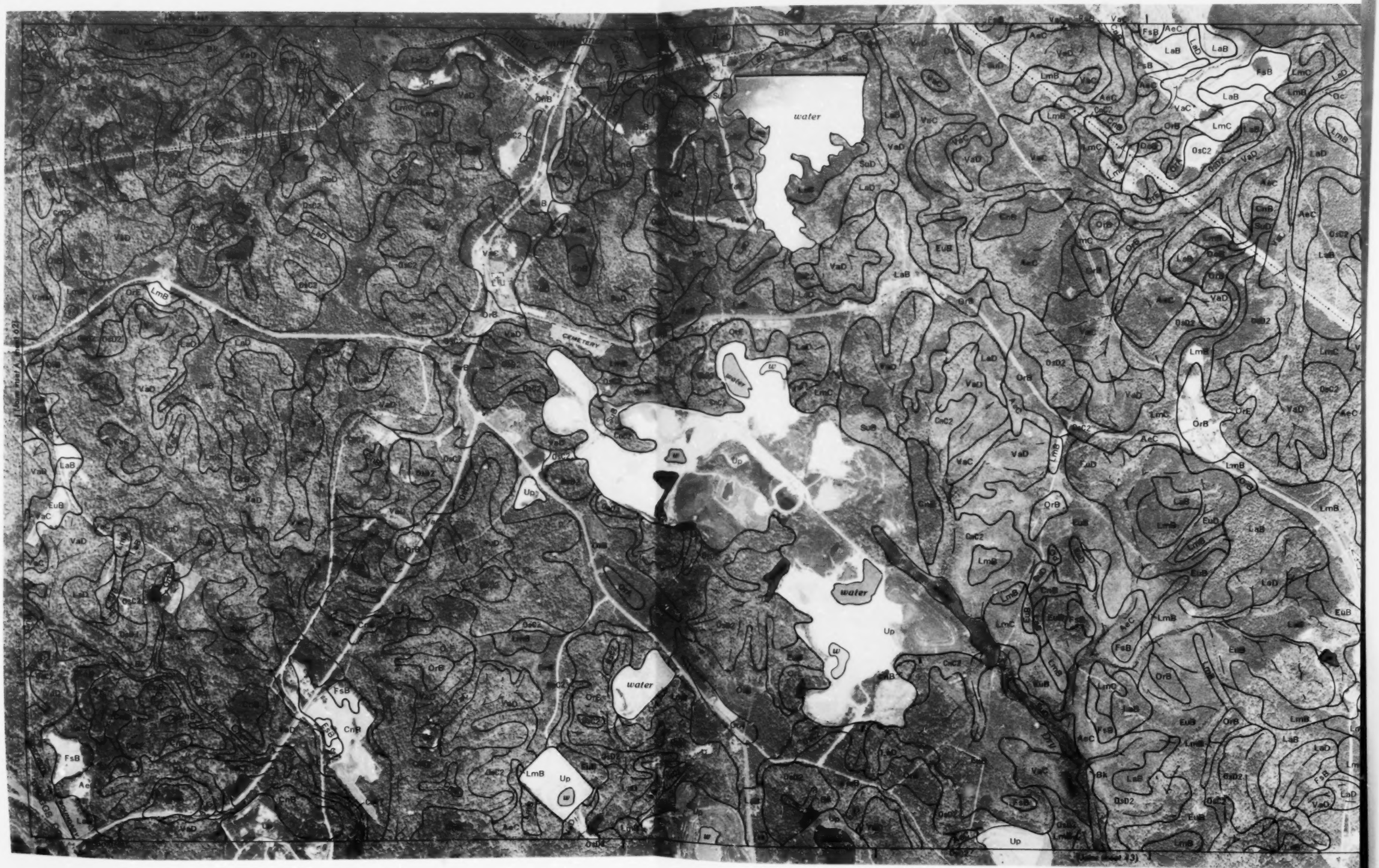


WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 35



N
(continued sheet 28)
JEFFERSON COUNTY
DoB
FaB
TfB
OrA
OrB
CnC2
FsC
MaB
LaB
ReB
LmB
LmC
OsC2
FaC2
ReC2
EuB
EuD
VaB
VaD
CnB
SuB
Bk
Oc
Ar
Ra
Pe
242
1 MILE
1 KILOMETER
SCALE 1:20 000

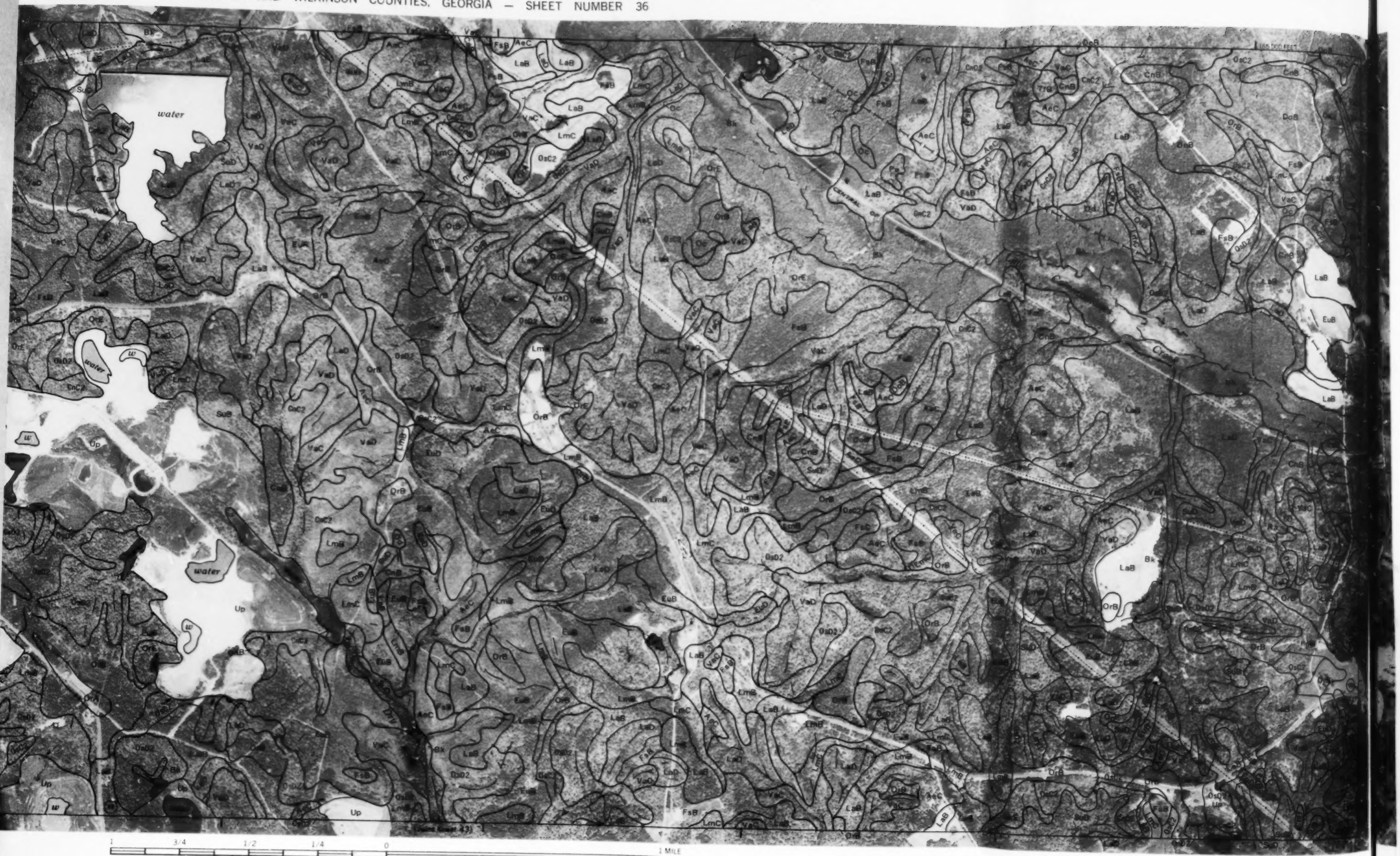
N



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20,000


water
water
water
water
Up
Up
Up
Up
Bk
Bk
Bk
Bk
W
W
W
W
1 MILE
1 KILOMETER
SCALE 1:20 000

CnB
Up
water
VaD
LaB
LmC
Ar
OrB
OsD2
DoB
DoC
FsB
Od
Commissioner Creek
Little
CENTRAL OF GEORGIA
McIntyre
Branch
OrA
441
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

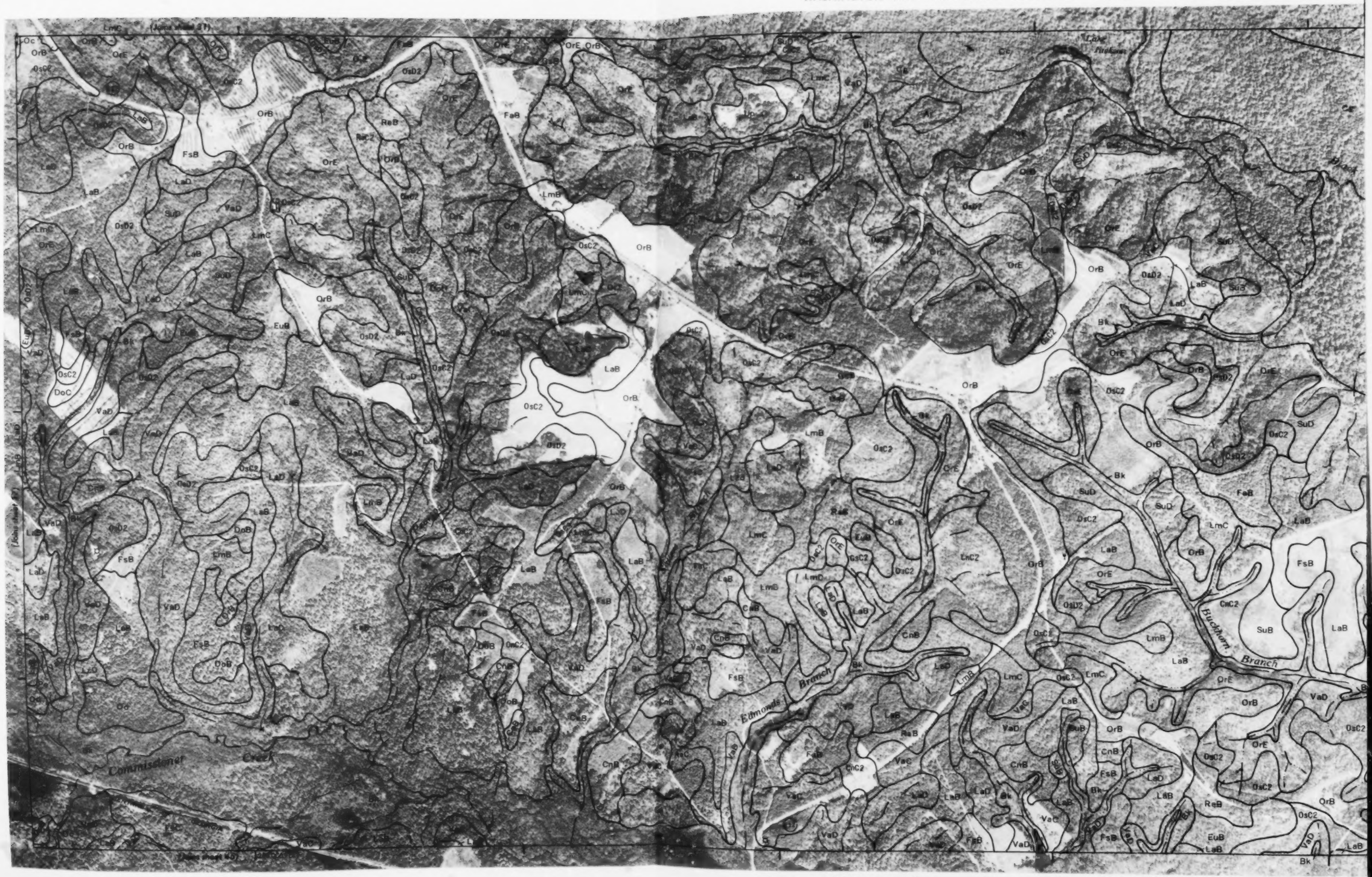
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 37

37

N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 38

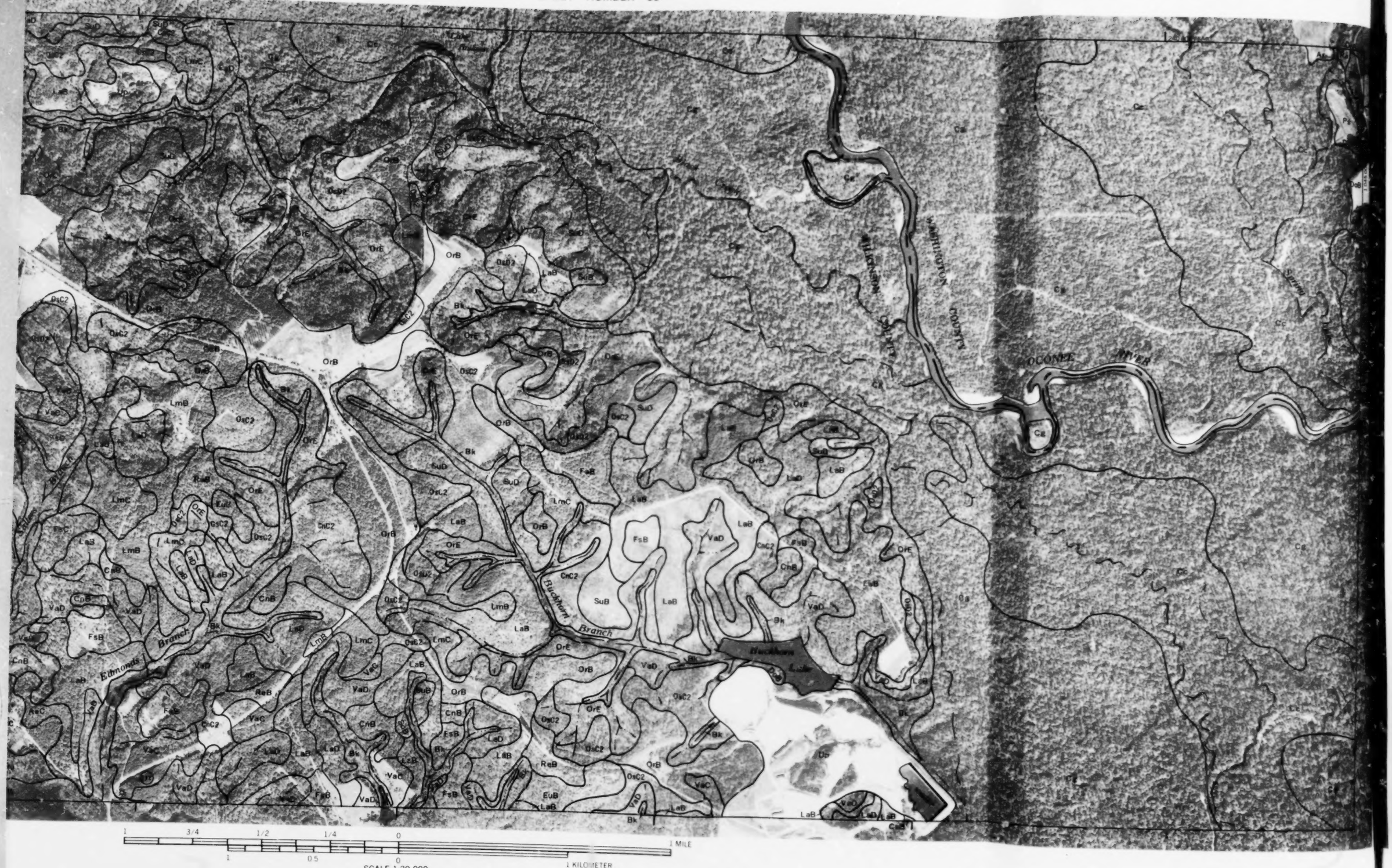
N

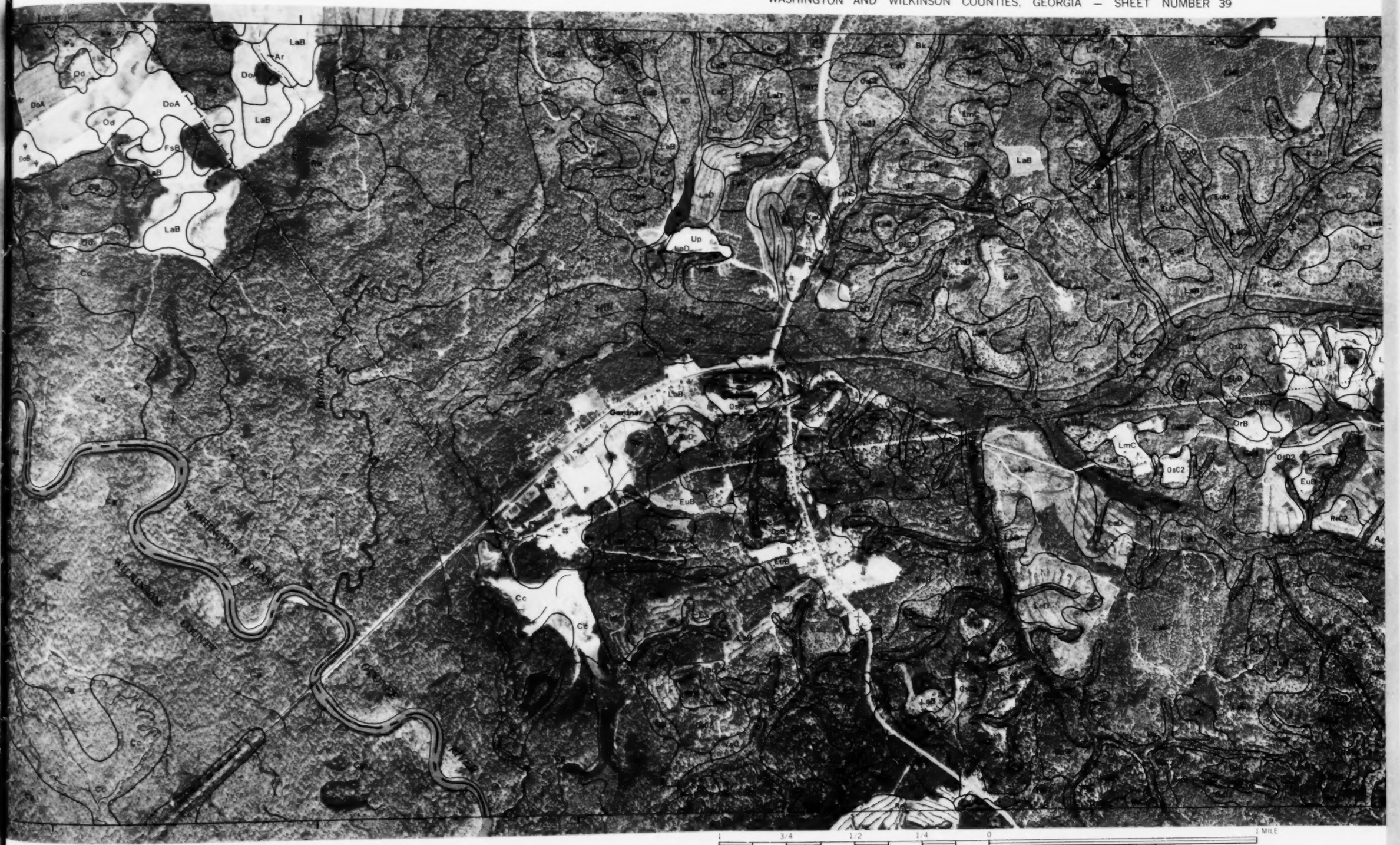


1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000


WASHINGTON COUNTY
OCONEE RIVER
Buckhorn Branch
Edmonds Branch
Buckhorn Lake
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000



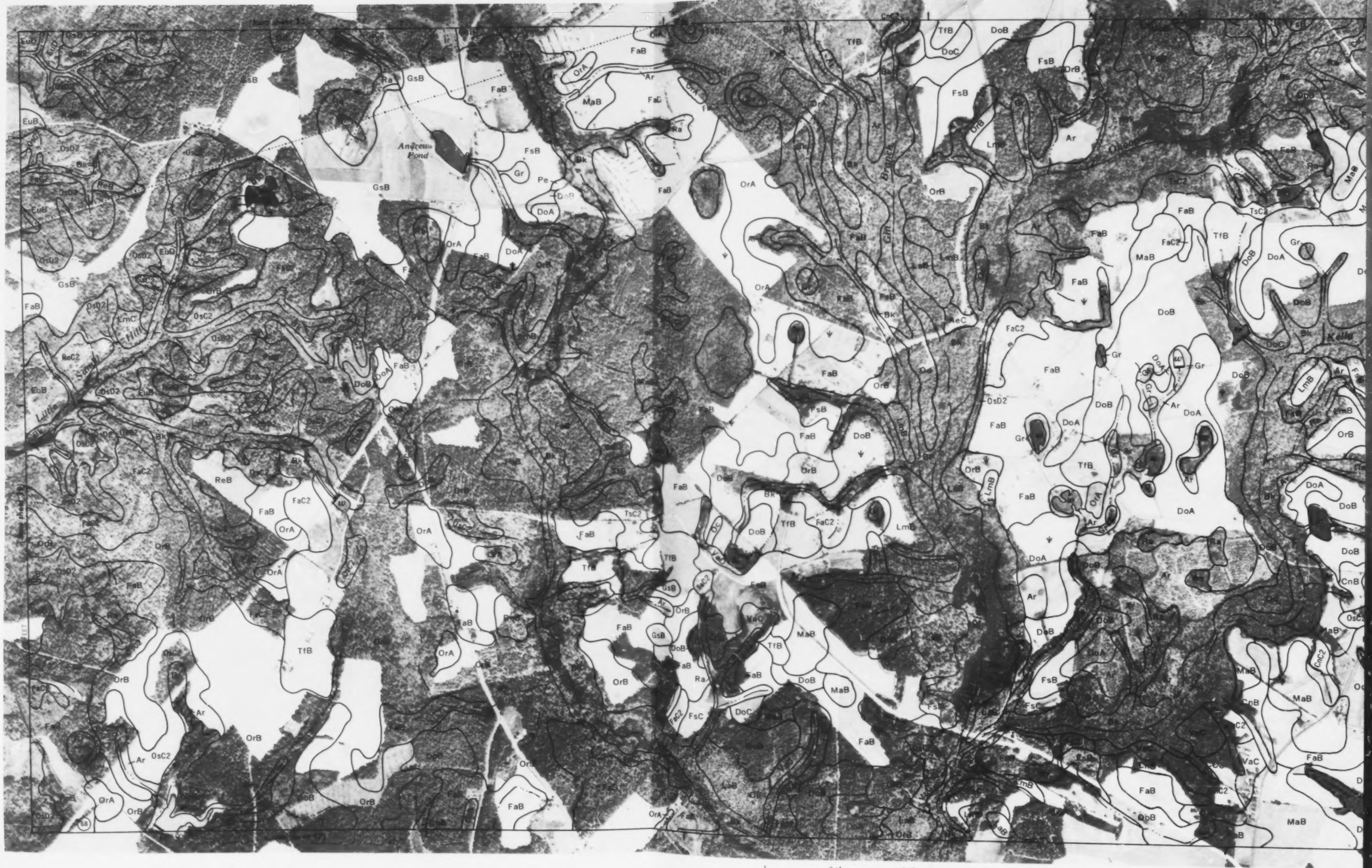
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 39

N



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

CnB
CnC2
DoB
DoA
FsB
LaB
Ra
Ar
Bk
FaB
TfB
VaD
VaC
MaB
Gr
Oc
FsC
FaC2
TsC2
CENTRAL OF GA.
Creek
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

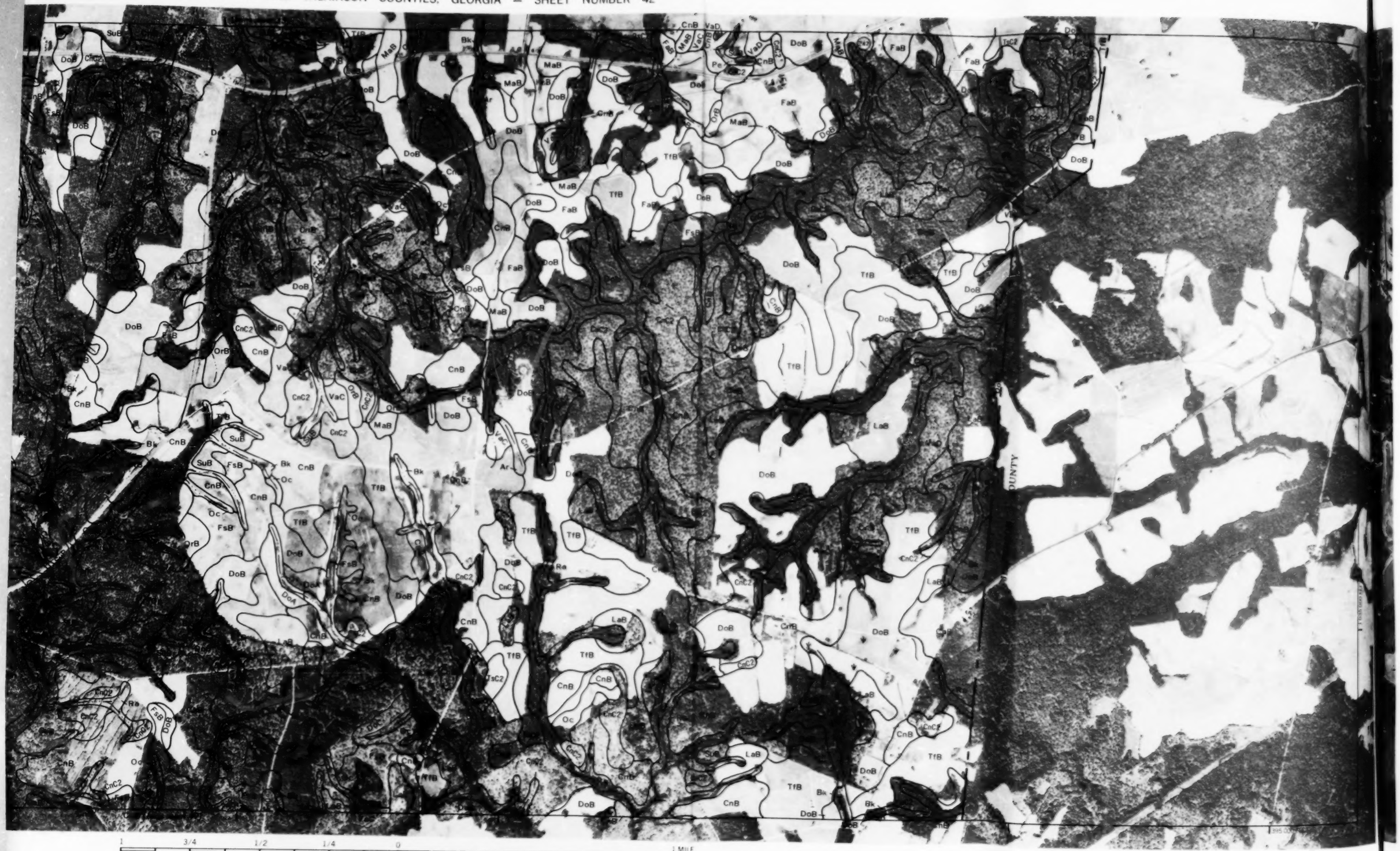
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 41

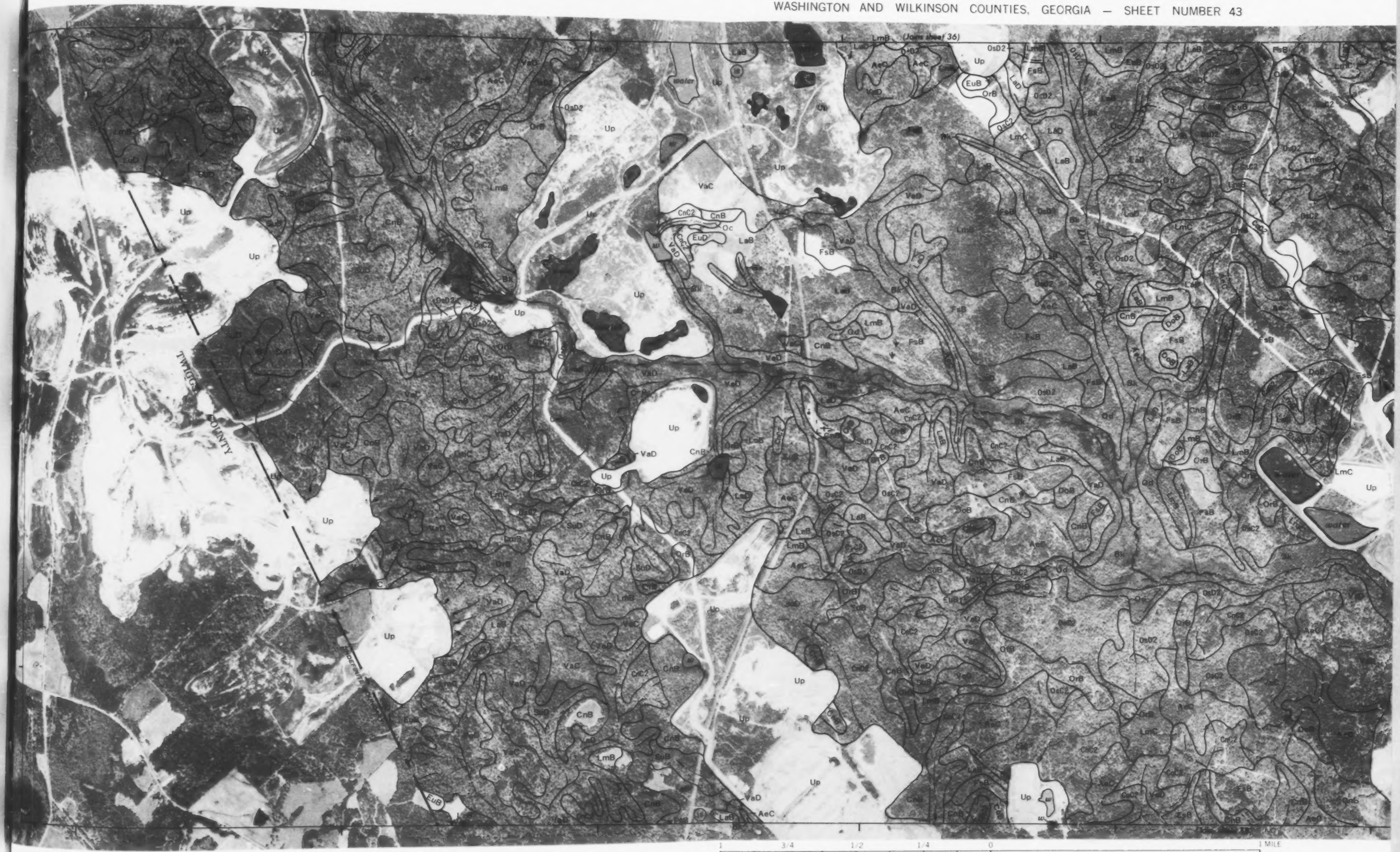
41

N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 42

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 42



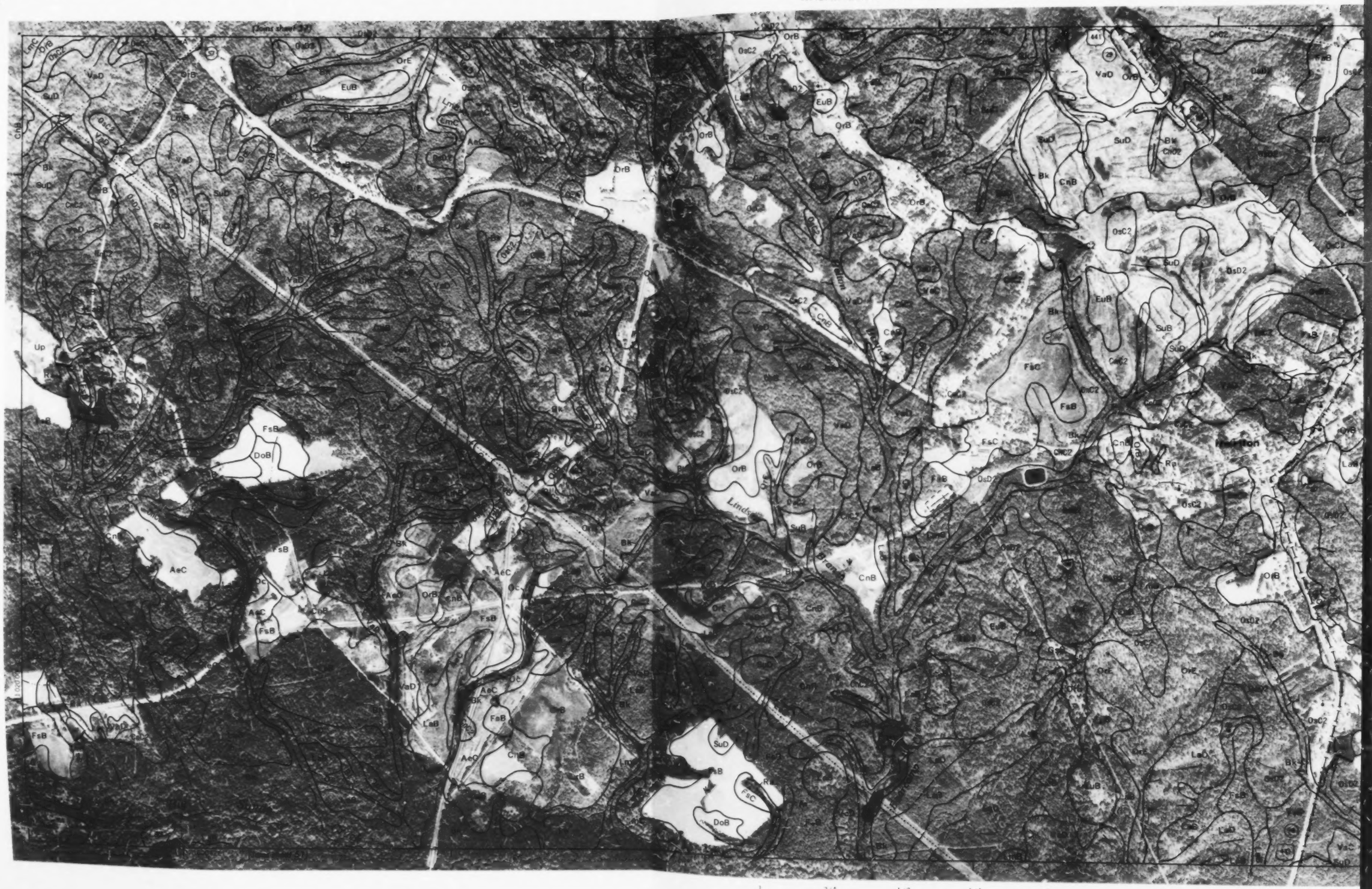


SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 43

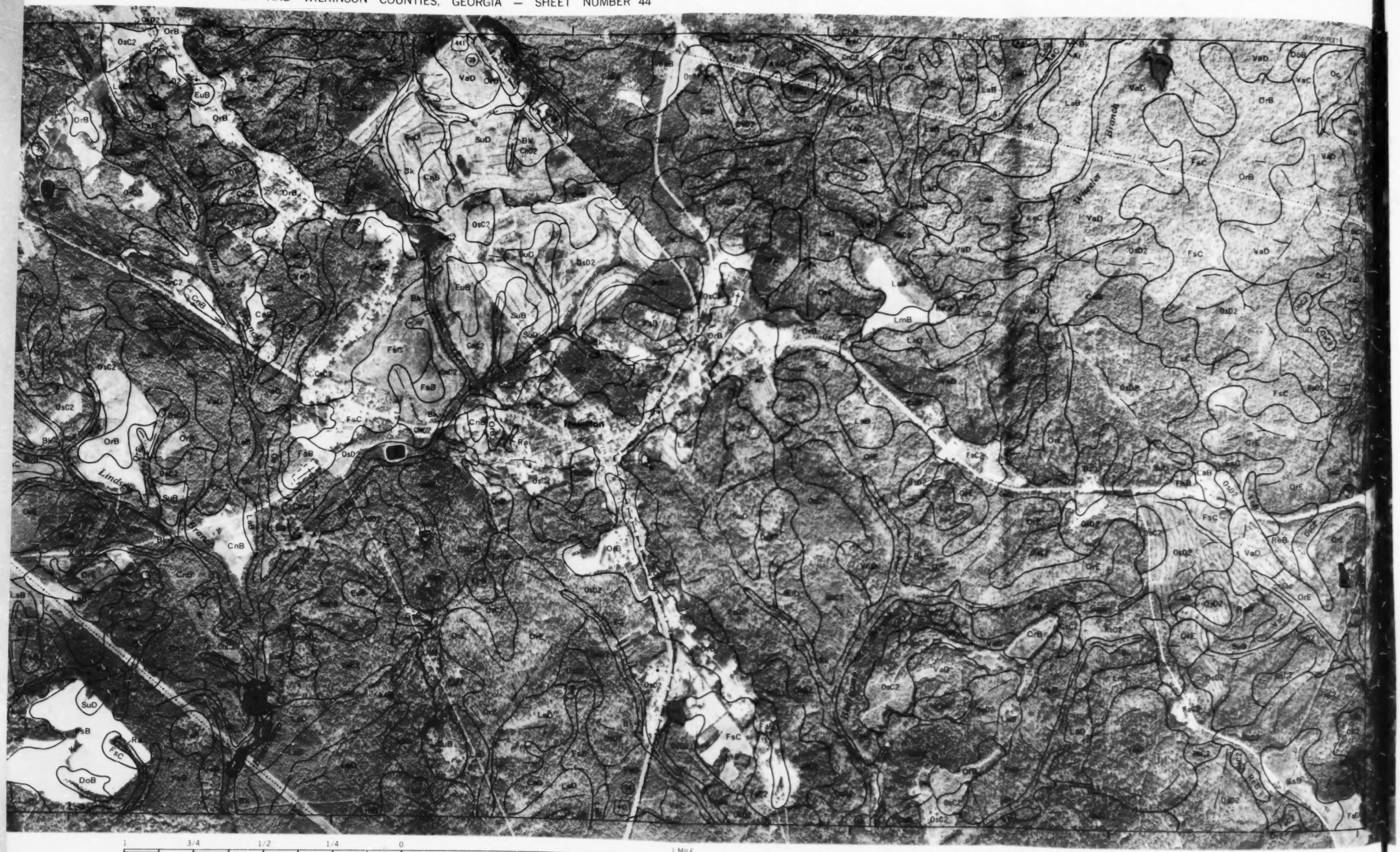
N

N



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER


Lindsey
Brandy
Wheeler
Fenton
Brandy
Fenton
441
441
441

Tennille
Oc
LaB
VaD
VaC
Bk
DoB
OsC2
FsB
CnC2
Gr
LmB
Up
FsC
SuB
OrB
OrE
SuD
ReB
GsB
GsC2
EuB
1 MILE
1 KILOMETER
SCALE 1:20,000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 45

N

(Joins sheet 39)

Buckhorn Branch

Commissioner Creek

OCONEE RIVER

WILKINSON COUNTY

Bay Branch

(Joins sheet 45)

(Joins sheet 53)

1 0 1 KILOMETER

1 3/4 1/2 1/4 0

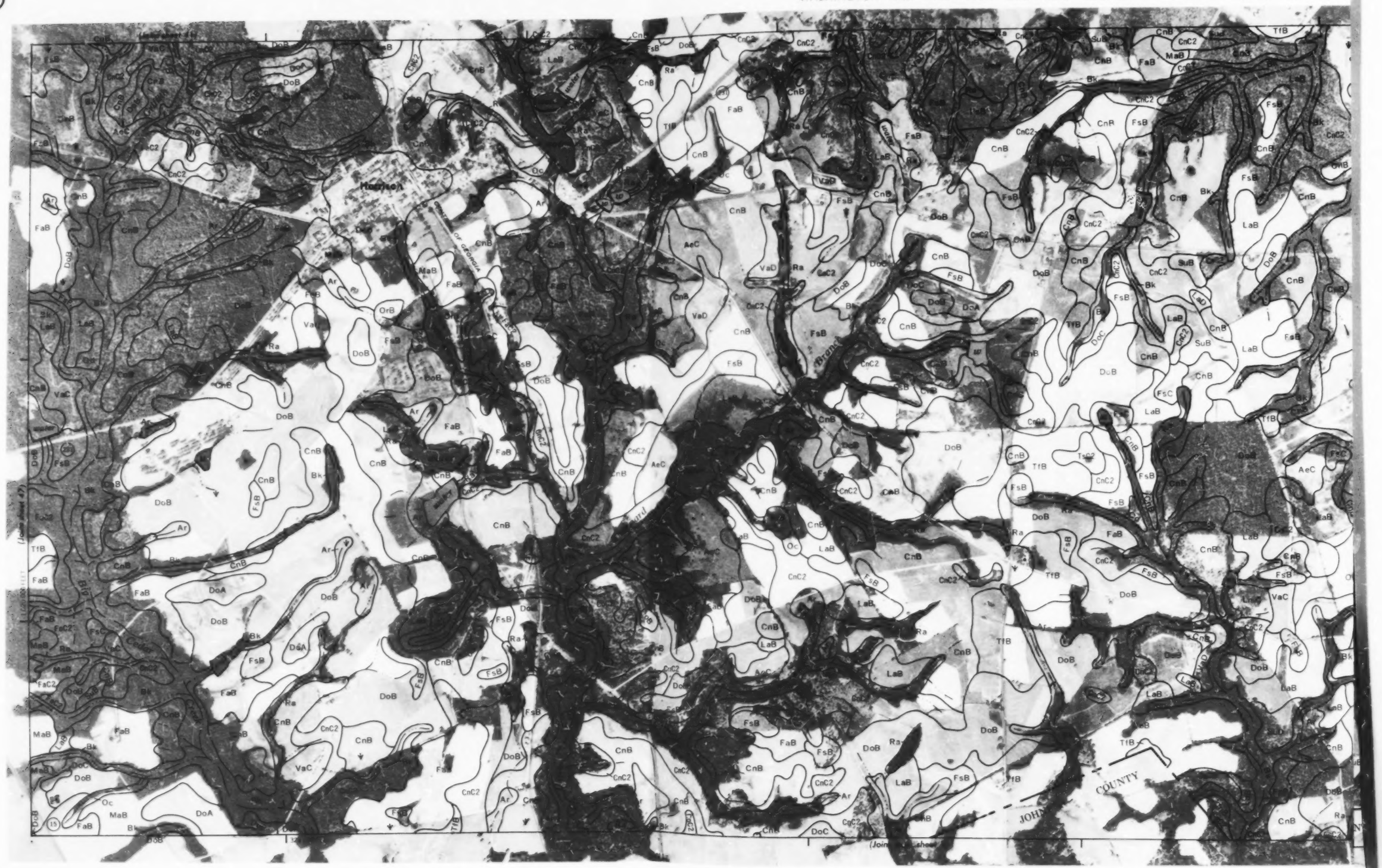
1 0.5 0

Bay
Branch
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

JOHNSON COUNTY
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

N

JOHNSON COUNTY
(Joins sheet 40)
(Joins sheet 57)
FaB
MaB
DoB
DoA
OrB
Ar
LmB
TfB
TsC2
FaC2
CnB
CnC2
DpB
Oc
Bk
Ra
Wa
Water
1 MILE
1 KILOMETER
SCALE 1:20 000

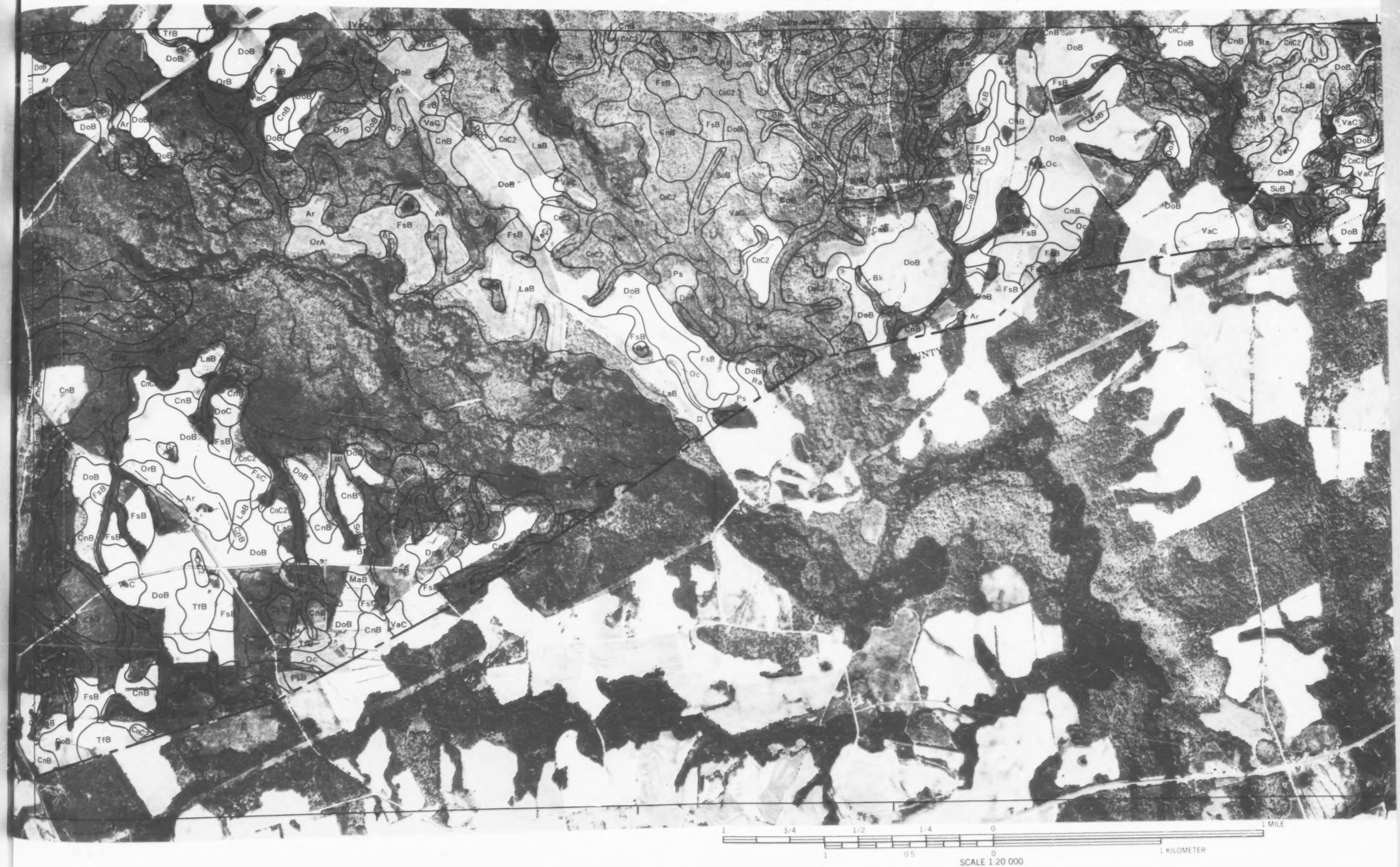

48
N
Washington
Wilkinson
COUNTY
JOHN
CnB
CnC2
FsB
DoB
LaB
Ra
Ar
FaB
TfB
VaC
AeC
Bk
SuB
DoA
MaB
Oc
VaD
DoC
TsC2
FsC
1
3/4
1/2
1/4
0
1 Mile

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 48

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

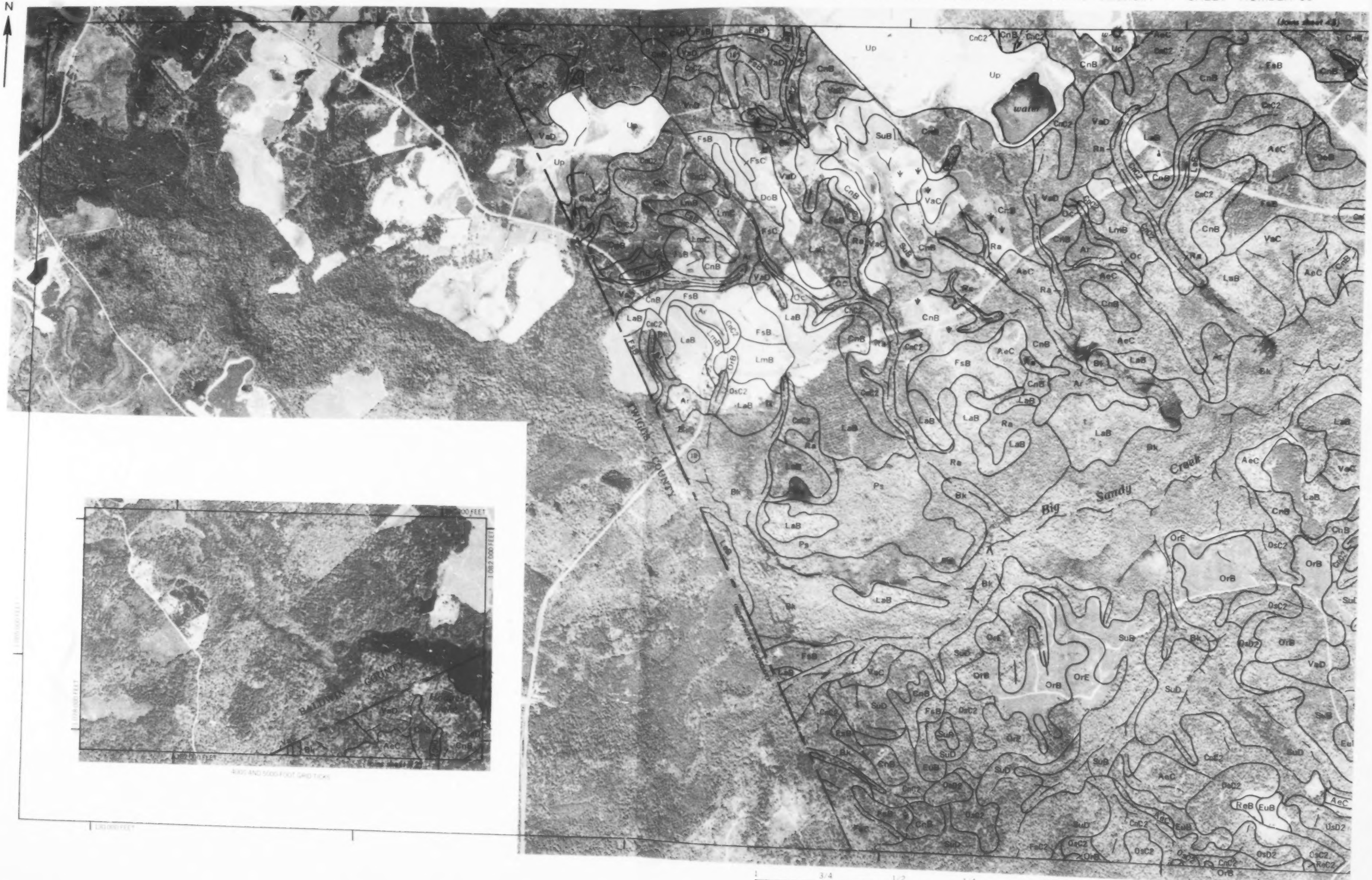
SCALE 1:20 000


1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 49

N

N


Up
water
Big Sandy Creek
BALDWIN COUNTY
JASPER COUNTY
JOHNSON COUNTY
Ra
Ps
Bk
Ar
Oc
Sk
LaB
CnB
CnC2
VaD
VaC
AeC
FsB
FsC
LmB
LmC
DoB
SuB
SuD
OrB
OrE
OsC2
OsD2
EuB
ReB
PsC2
Dab2

1 3/4 1/2 1/4 0

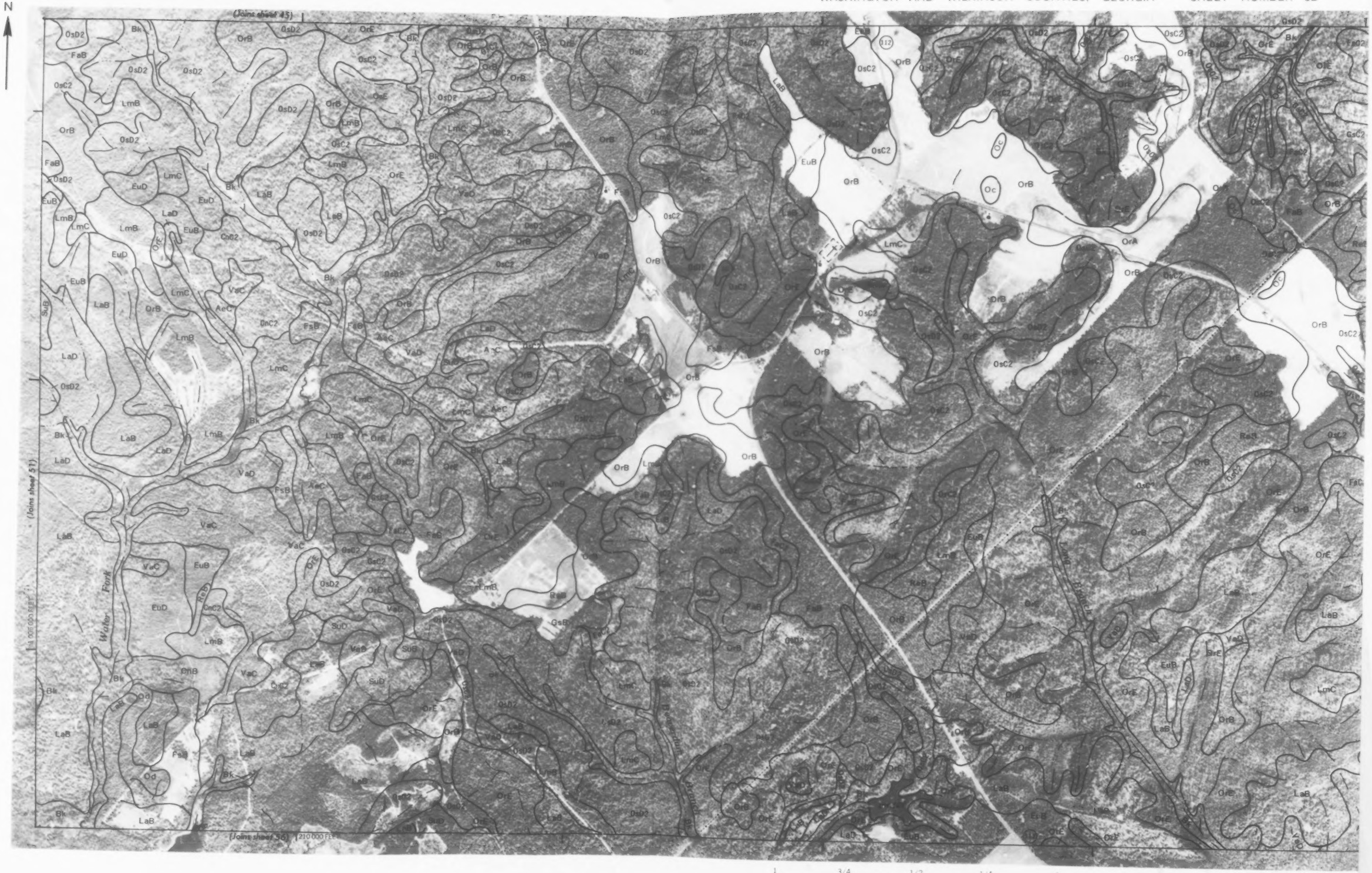
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 50

Sandy Creek
Bethlehem
LaB
FsB
LmC
AeC
OsC2
OrB
LmB
OrE
VaD
VsC
CnC2
CnB
EuB
SuB
OoB
Ar
Oc
1 MILE
1 KILOMETER
SCALE 1 20 000

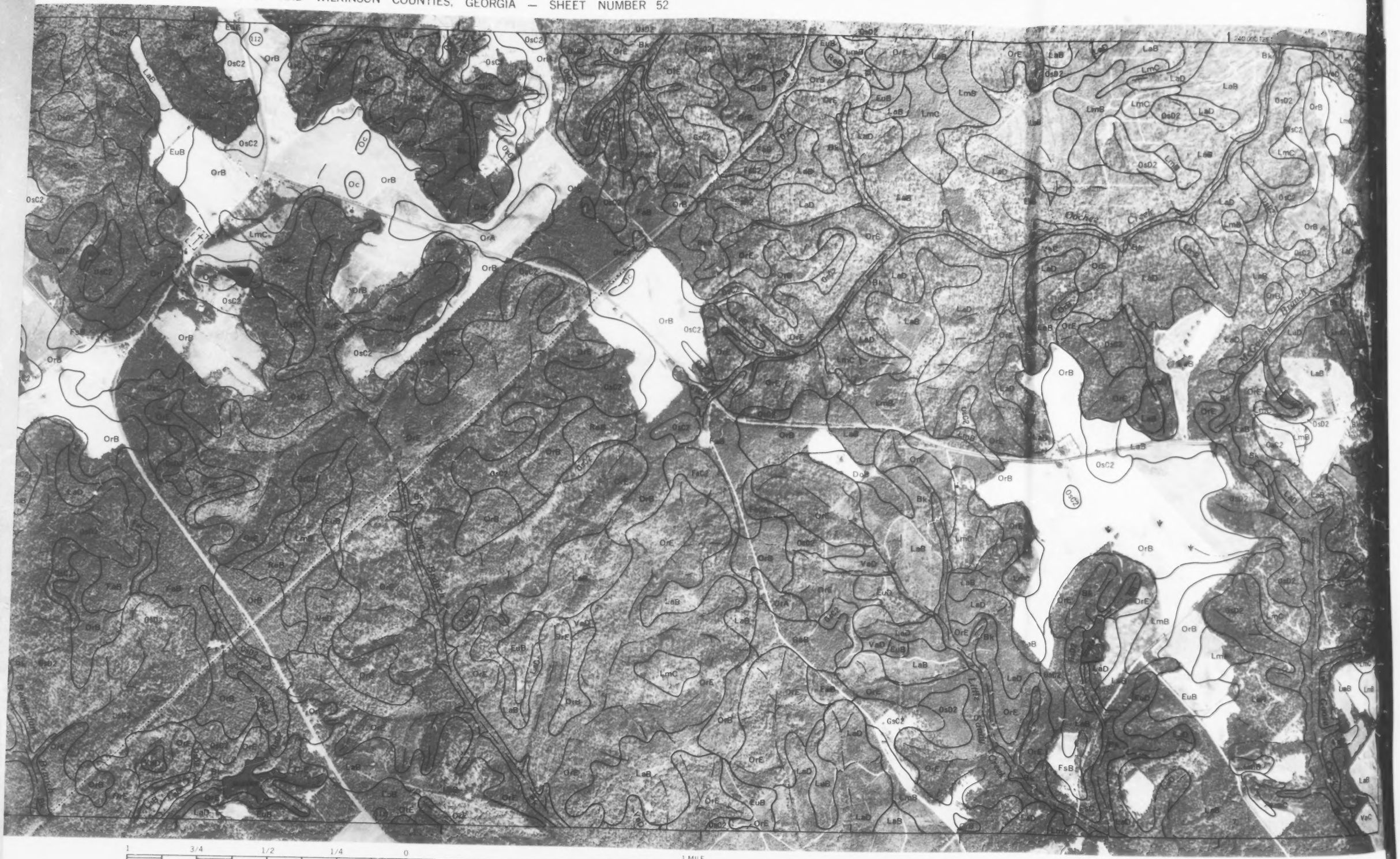
N

1 MILE
1 KILOMETER
SCALE 1:20 000

N


(Joins sheet 45)
(Joins sheet 51)
(Joins sheet 53)
210 000 FEET
Walter Fork
Buckhead Creek
OsD2
OsC2
OrB
OrE
LaB
LaD
LmB
LmC
EuB
EuD
VaC
VaD
FsB
FaB
Bk
Od
Oc
1
3/4
1/2
1/4
0
1 MILE
1
0.5
0
1 KILOMETER

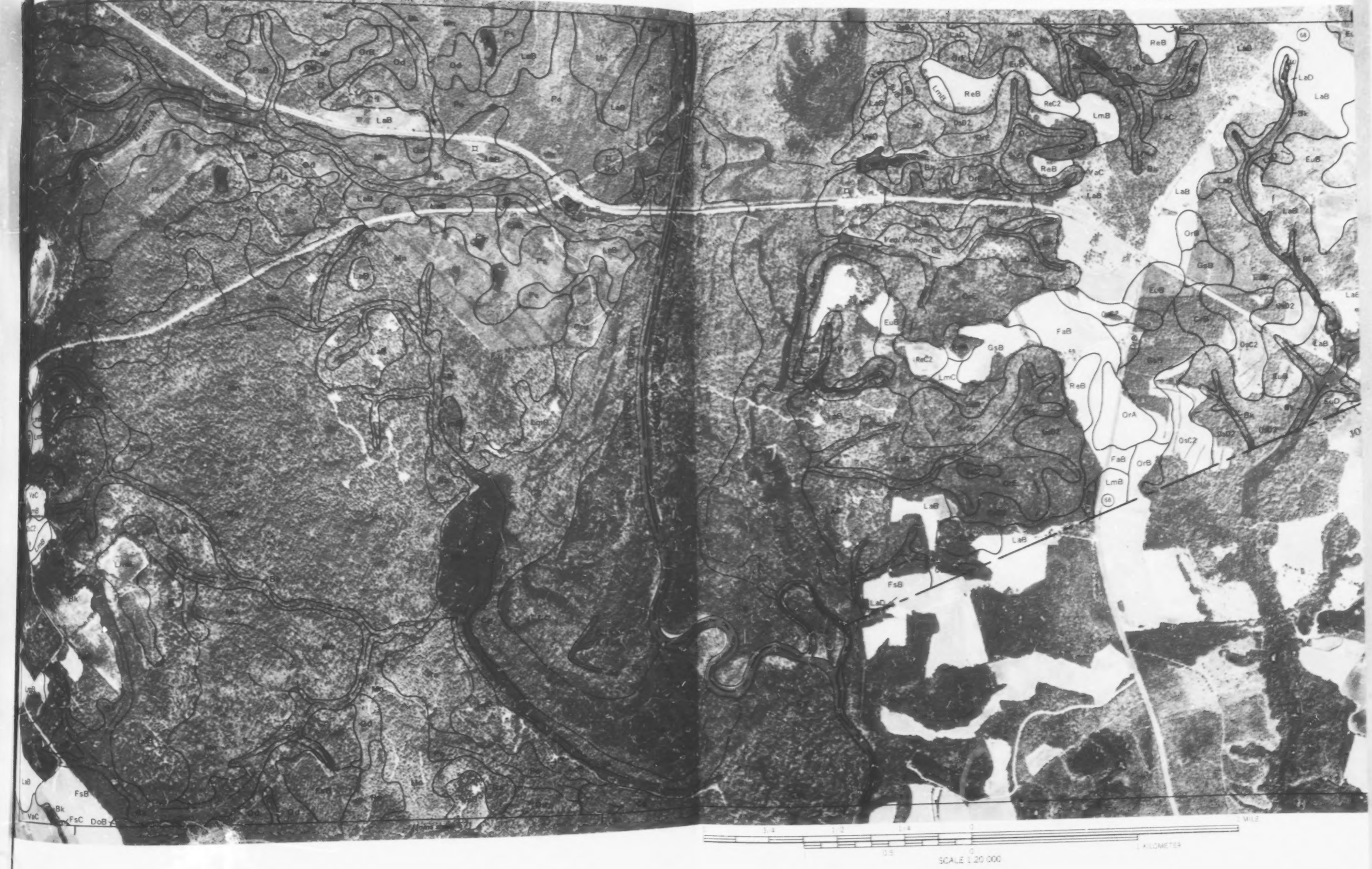
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 52



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000


Ohoopee R
Ohoopee R
Vocal Pond
Bk
LaB
LaD
EuB
EuD
ReB
ReC2
LmB
LmC
VaC
OrB
OrC
GsB
FaB
OrA
OsC2
FsB
FsC
DoB
LmB
VaC
LaB
Bk
FsB
FsC
DoB
1 MILE
1 KILOMETER
SCALE 1:20,000

N
(Joins sheet 46)
(Joins
JOHNSON COUNTY
Vaul Pond
Hardy Pond
Creek
1 MILE
1 KILOMETER
SCALE 1:20 000

(54)

N

1 3/4 1/2 1/4 0 1 MILE

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 54

1 3/4 1/2 1/4 0 1 MILE

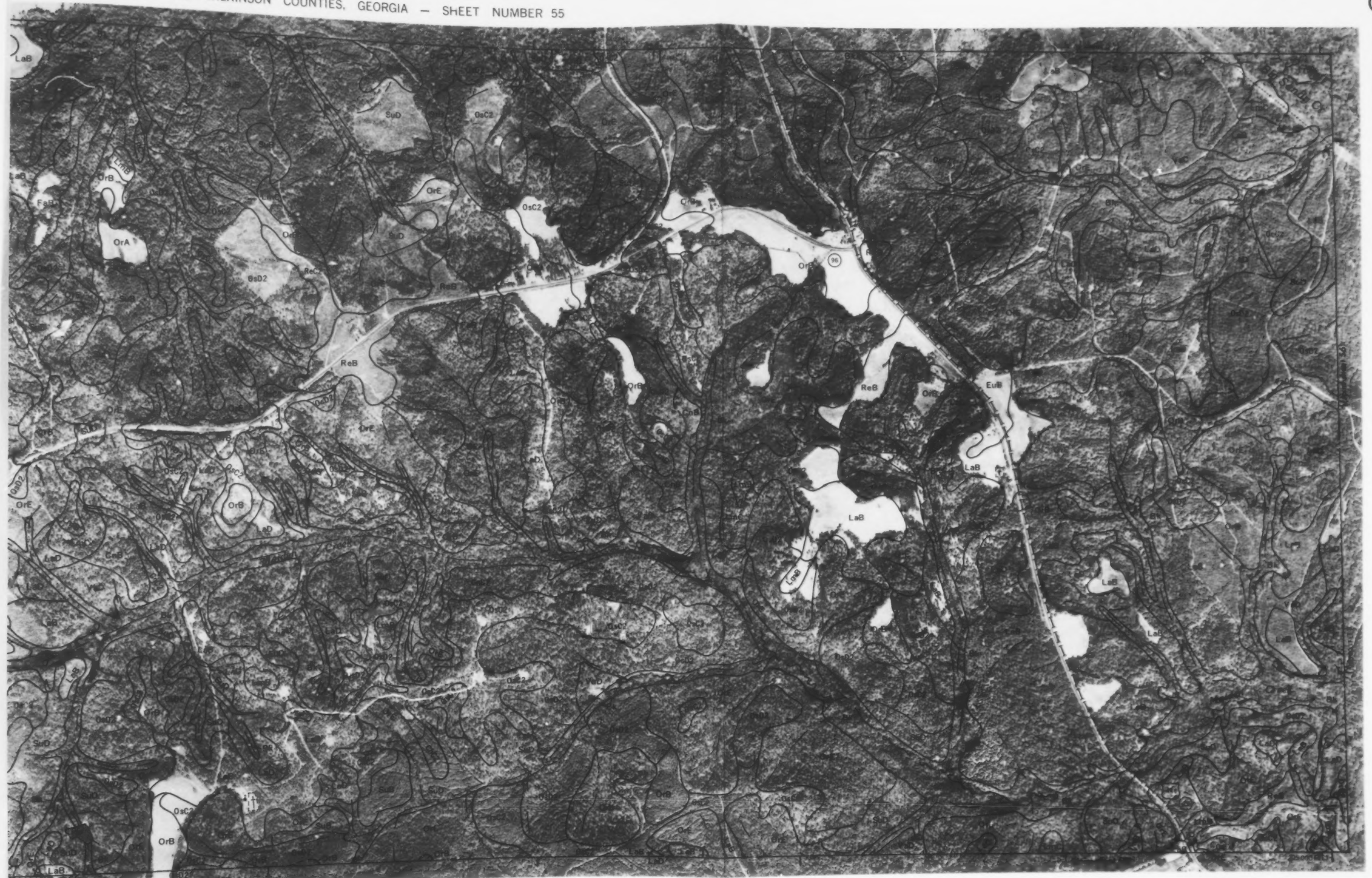
1 0.5 0 1 KILOMETER

SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 55

SCALE 1:20 000

N



1 MILE

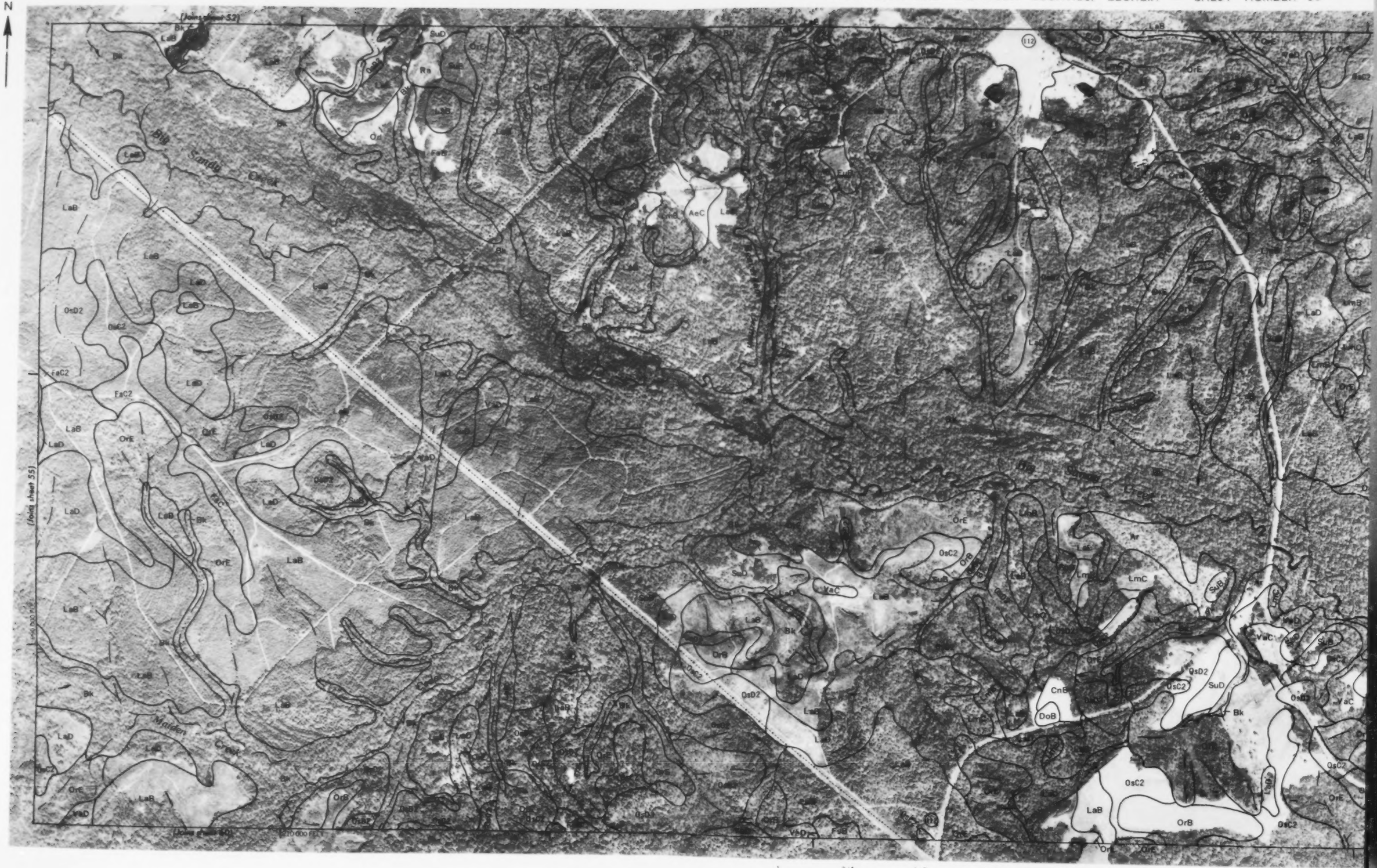
1 3/4 1/2 1/4 0

1 KILOMETER

1 0.5 0

SCALE 1:20 000

N

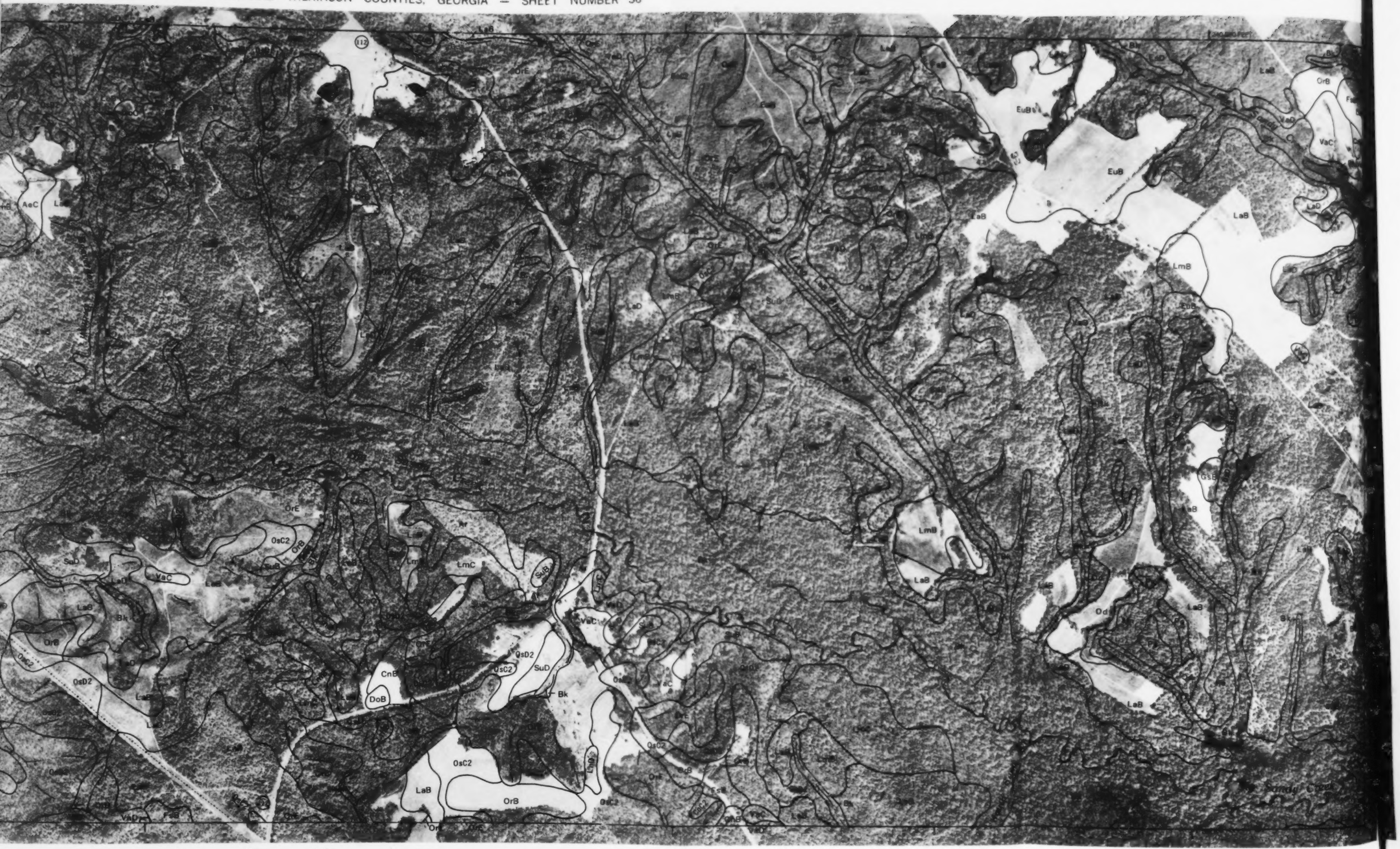


1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

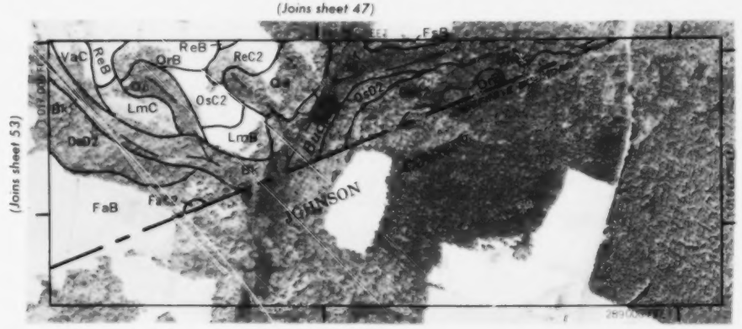
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 56



1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000



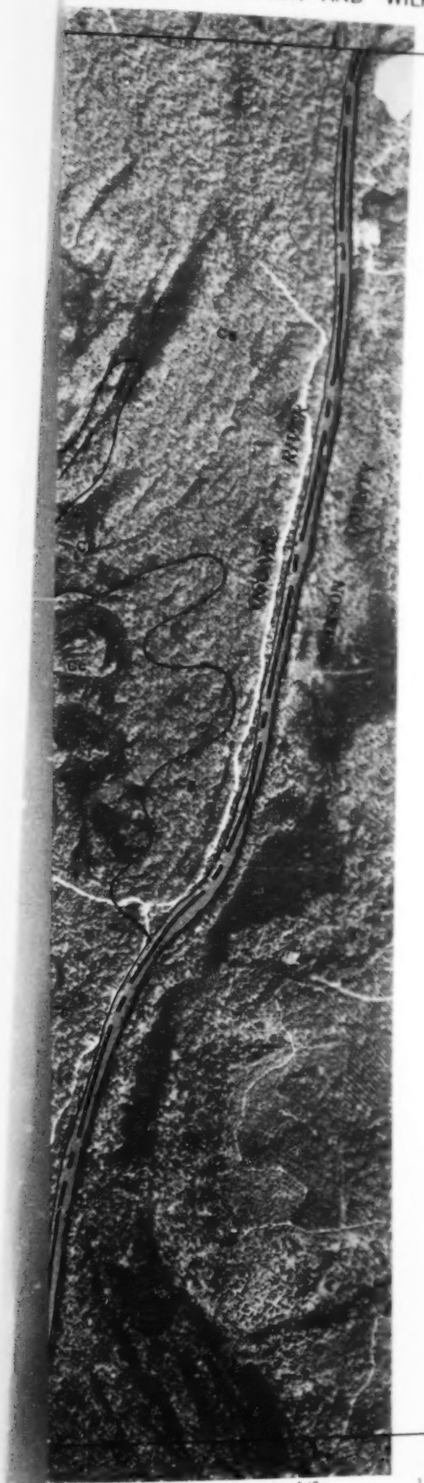
2000 AND 4000-FOOT GRID TICKS

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

N


Ce
Ce
Ce

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 58

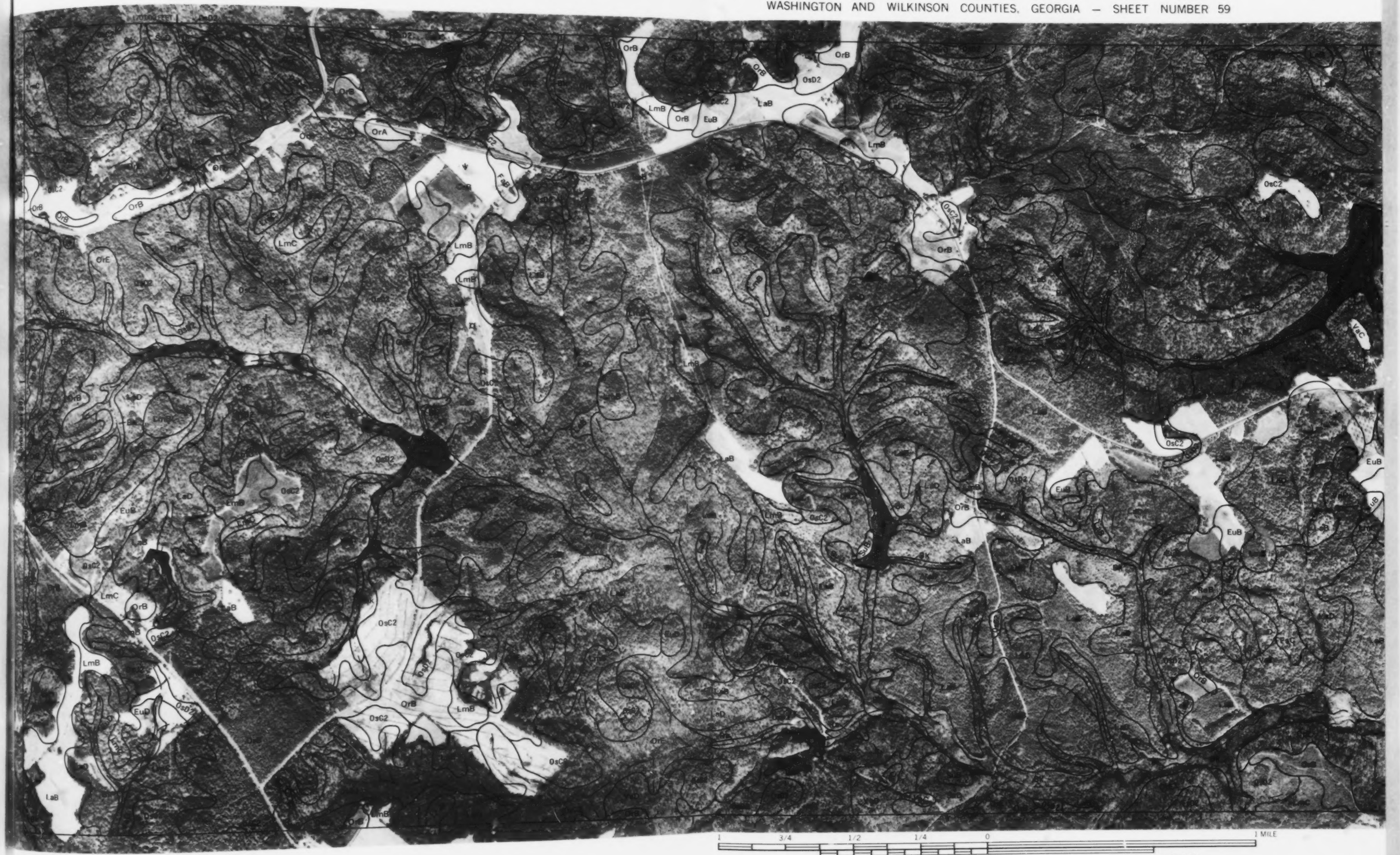
N

1 3/4 1/2 1/4 0 1 MI

1 0.5 0 1 KILOMETER

SCALE 1:20 000

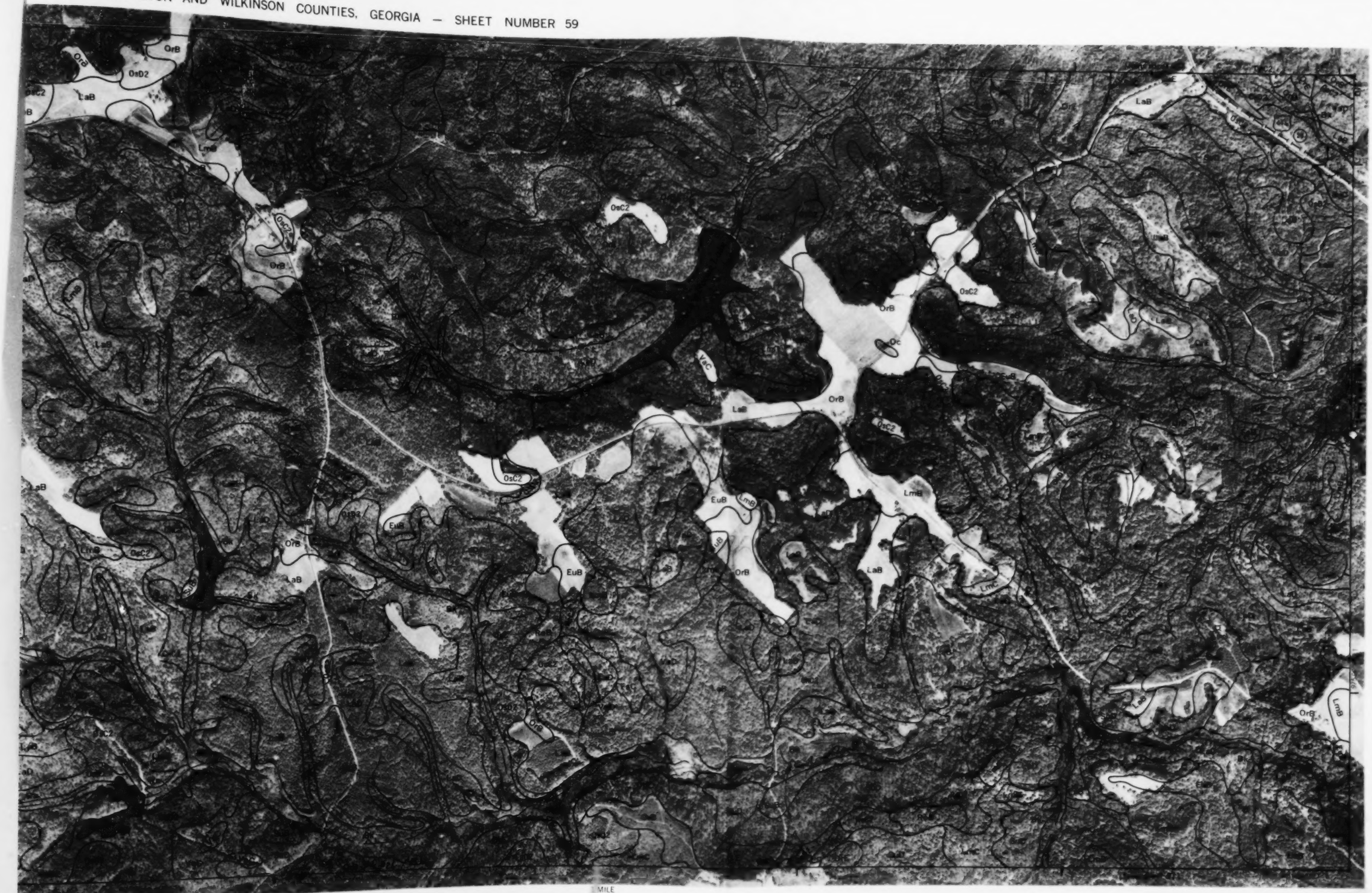
(Joins sheet 54)
145 000 FEET
Mallory Branch
TWIGGS COUNTY
WASHINGTON COUNTY
150 000 FEET
(Joins inset B, sheet 42)
1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000


OrB
OrA
OrE
OsD2
OsC2
LaB
LmB
LmC
EuB
VaC
1 MILE
1 KILOMETER
SCALE 1:20 000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 59

59

N



1 MILE

1 3/4 1/2 1/4 0

1 KILOMETER

1 0.5 0

SCALE 1:20 000

60

N

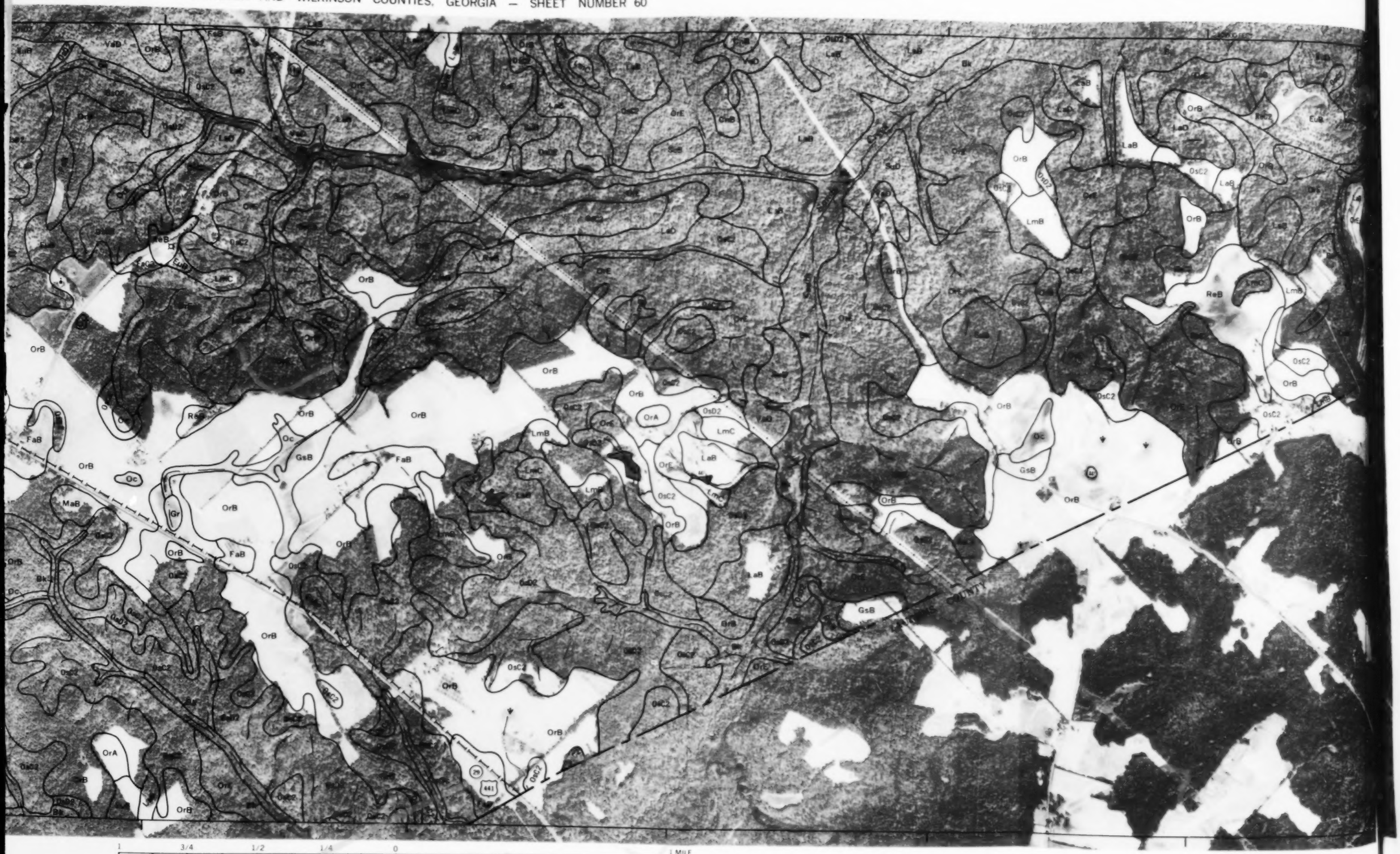
WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 60

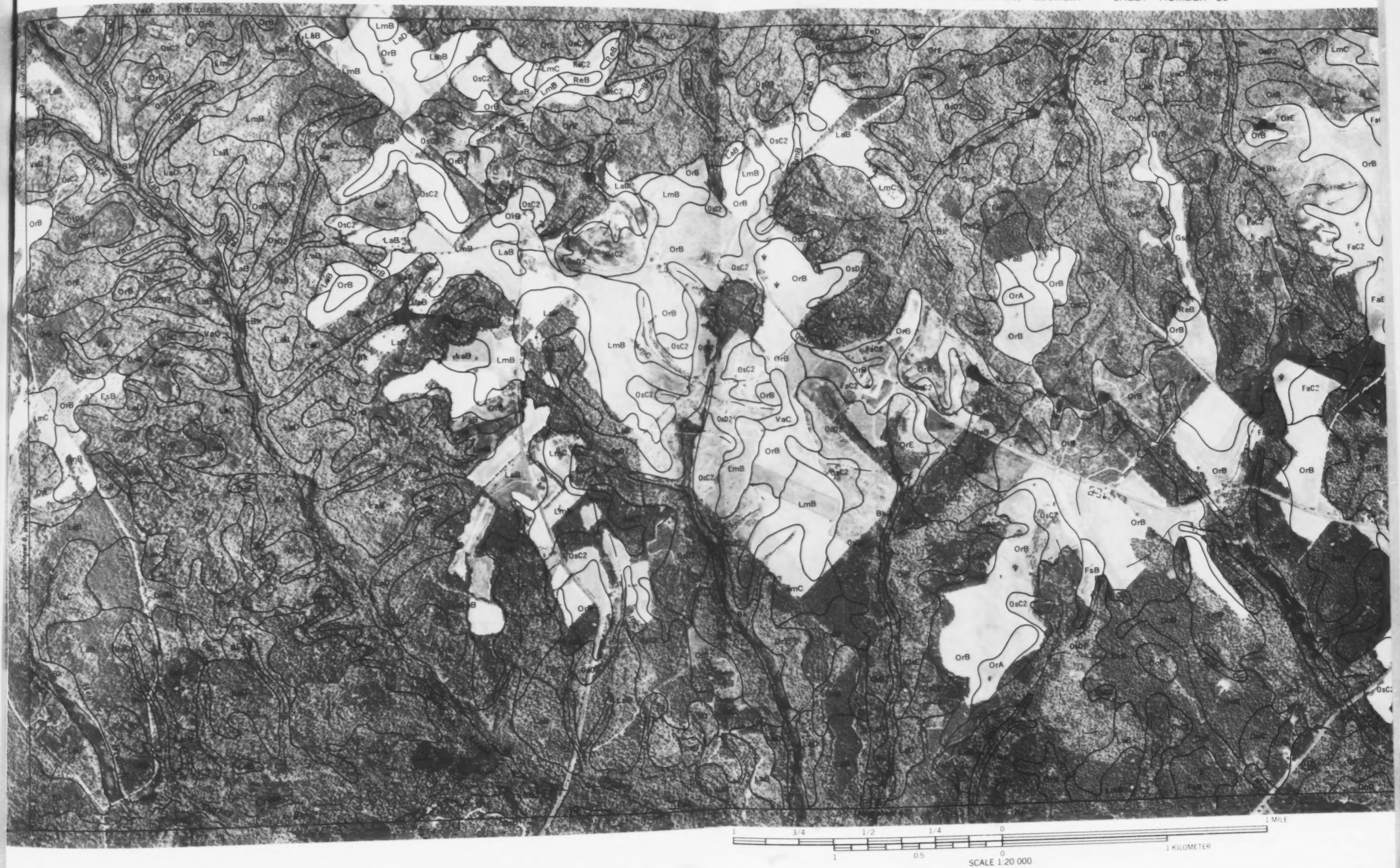
1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

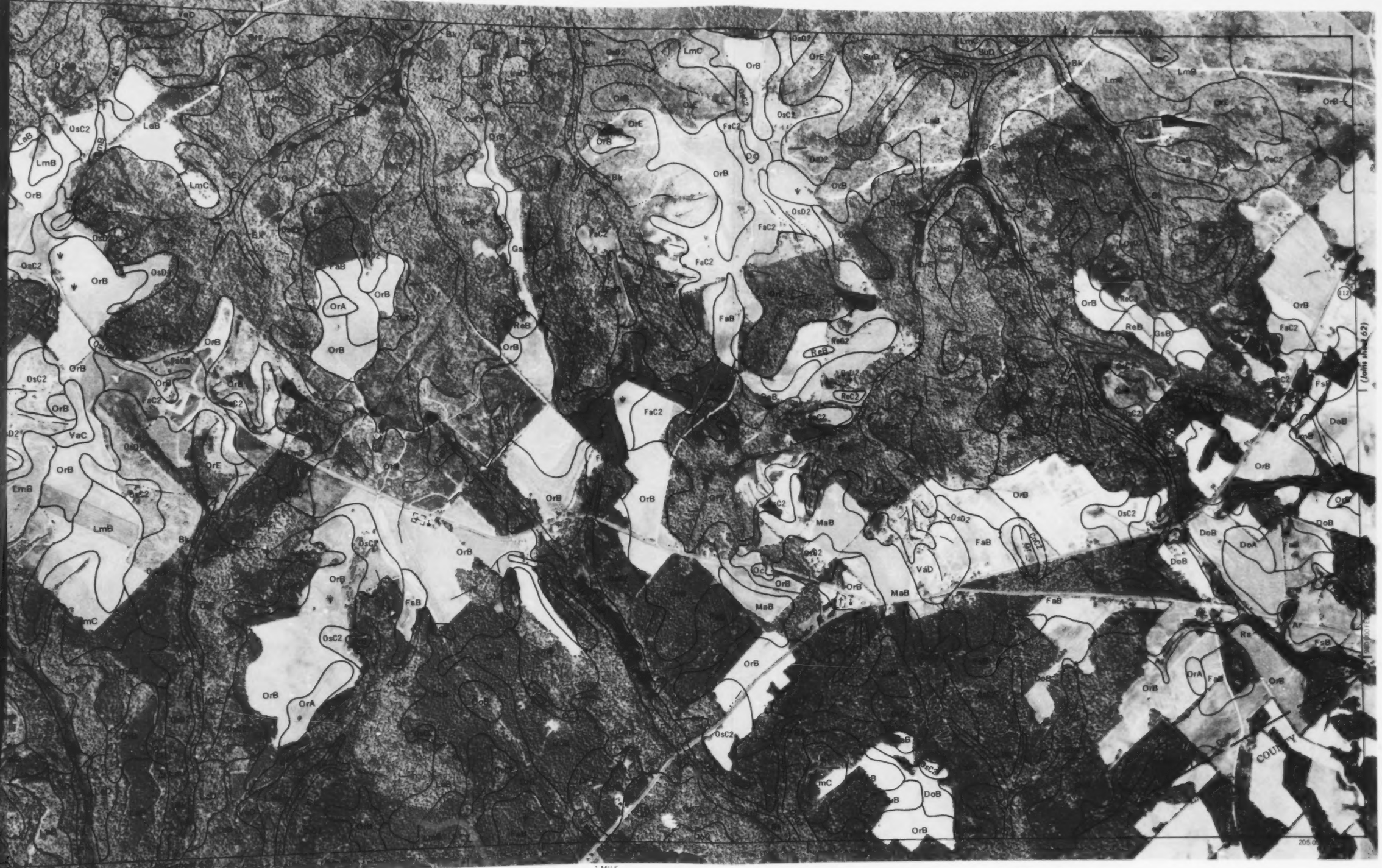
SCALE 1:20,000

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 60




1 MILE
1 KILOMETER
SCALE 1:20 000

N



1 MILE

1 3/4 1/2 1/4 0

1 KILOMETER

1 0.5 0

SCALE 1:20 000

N

WASHINGTON AND WILKINSON COUNTIES, GEORGIA — SHEET NUMBER 62

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

INSET A

INSET B

1 MILE

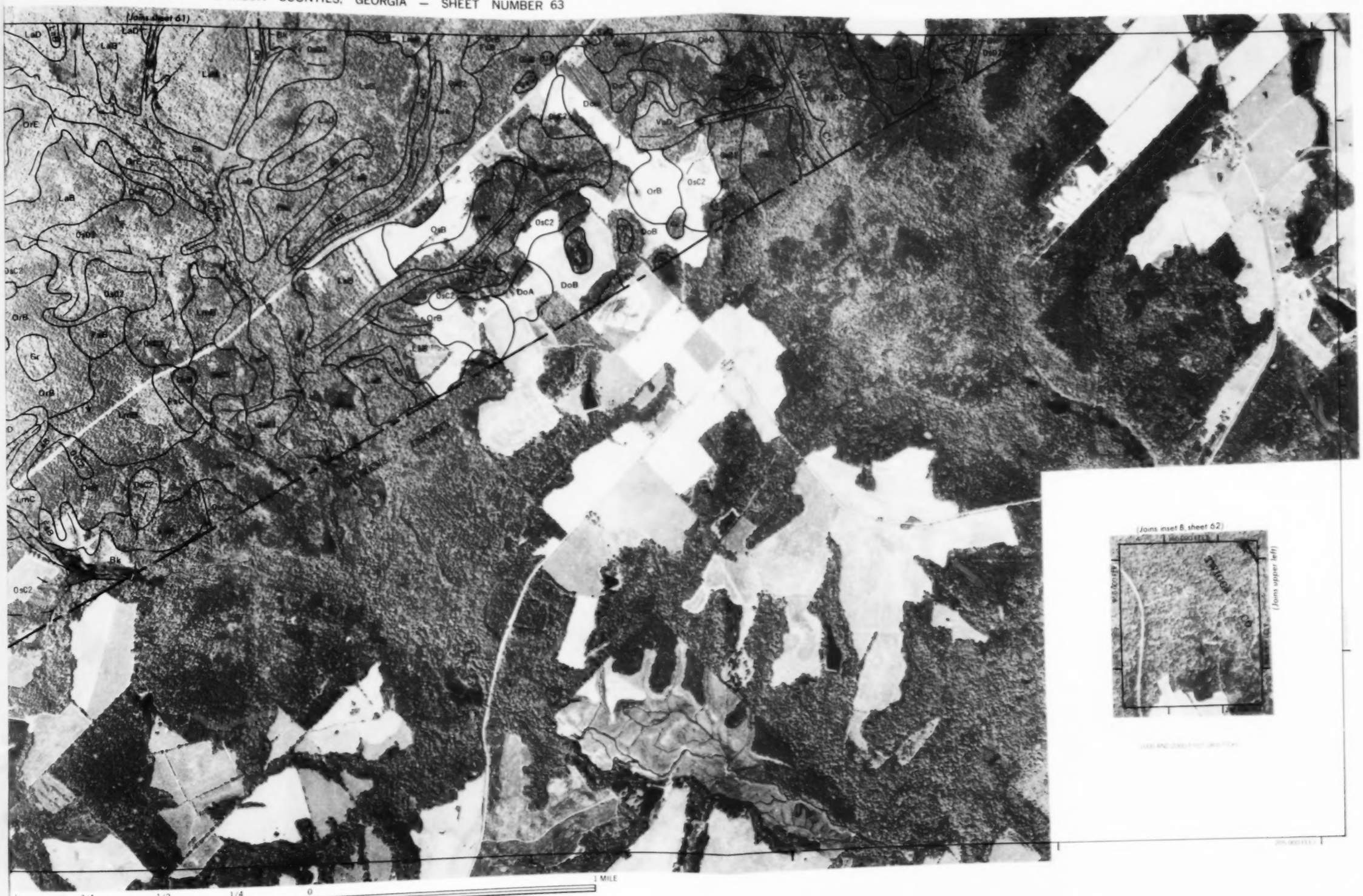
1 KILOMETER

SCALE 1:20 000

3000 AND 5000-FOOT GRID TICKS

(Joins sheet 61)
COUNTY
LINE
1 MILE
1 KILOMETER
SCALE 1:20 000

N



1 MILE

1 3/4 1/2 1/4 0

1 KILOMETER

1 0.5 0

SCALE 1:20 000